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"To promote the study and dissemination of knowledge of the cause, prevention and control of diseases of the teeth, their supporting structures and adnexa and related subjects; and to foster and promote a better scientific understanding between the fields of dentistry and medicine."

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JOURNAL OF DENTAL MEDICINE

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2. The title should appear at the top of the first page, followed by the name and degrees of the author or authors. The address of the author should appear at the end of the article.

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THE PROBLEM OF DIABETES MELLITUS IN DENTAL PRACTICE*

E. Cheraskin, M.D., D.M.D.†

INTRODUCTION

It is of some interest that, in the past twenty years, about sixty articles have appeared in the English-language dental literature on the subject of diabetes mellitus. Of these, approximately twenty have been of an original nature. The rest have been of the review type, with occasional case reports and a limited number of animal studies.

This report is designed to summarize: (1) the magnitude of the problem of diabetes mellitus, and (2) the methods available for the detection of the diabetic patient in the dental office.

THE EPIDEMIOLOGY OF DIABETES MELLITUS

Diabetes mellitus has been studied quite extensively with respect to age of onset, sex ratio, occupation, incidence, heredity, and obesity.

Diabetes mellitus may become clinically apparent at any age. However, it is generally agreed that it develops with much greater frequency after the age of forty. Though in youth the male may predominate, the greatest number of cases occur in the female with advancing age. Those of sedentary occupation, which in the United States parallels higher economic and educational levels, are most often afflicted[1]. These points are of cardinal interest to the dental practitioner because it is the middle-aged, educated, reasonably well-to-do individual who is most apt to seek complete dental care.

The principal item of stomatologic interest is the incidence of diabetes mellitus[2, 3, 4, 5]. There is, at least, one known diabetic individual in every 160 persons in the United States and about four unknown or prediabetic persons for every established case. Thus it is that approximately one out of every thirty-two patients who enters the dental office is either diabetic or has a predisposition for diabetes mellitus.

Although the etiology of diabetes mellitus is still unknown, heredity and obesity are recognized as predisposing factors[2, 4, 6]. It is now widely accepted that diabetes mellitus may be inherited as a recessive, non-sex linked characteristic. For example, a patient with two diabetic parents has an almost 100 percent chance of eventually showing symptoms and signs of this disorder. An individual with only a diabetic first cousin has something less than one out of two chances of becoming a diabetic patient. Apropos of obesity, over four out of every five diabetic patients report having been obese at, or just prior, to the time diabetes mellitus was first detected.

This simple and very brief epidemiologic approach is designed for one purpose—to underscore the fact that diabetes mellitus is a big problem and one which cannot be ignored by the dental practitioner.

THE DETECTION OF DIABETES MELLITUS

Four avenues are available to the practitioner for the detection of diabetes mellitus. They are: (1) *history,* (2) *clinical examination,* (3) *roentgenographic examination,* and (4) *laboratory tests.*

HISTORY

In a medical study by Barach[7] of 355 diabetic patients, thirteen primary symptoms were found to occur with such regularity that they deserve mention (Fig. 1). It is of particular stomatologic interest that one of the most common initial complaints is that of dryness of the mouth[1, 2, 8] which reputedly occurs in one out of every four cases. One investigator[9] reported the finding of constant and occasional dryness of the mouth in 6 and 20 percent of his cases

* Presented before the 15th Annual Meeting of The American Institute of Dental Medicine, Palm Springs, California, October 1958.

† Section on Oral Medicine, University of Alabama Medical Center, Birmingham, Alabama.

Figure 1

primary complaint	percentage Barach study*	Alabama study**
dryness of the mouth	75	4
frequent urination	75	14
weakness	75	8
hunger	66	10
shortness of breath	65	2
palpitation	55	2
itching of the skin	55	4
coldness of the extremities	45	0
falling of hair and nails	45	0
swelling of extremities	40	2
disturbed menses	35	0
boils and abscesses	35	0
passing large amounts of urine (more than 2 qts daily)	18	14

* Barach, J. H. Diabetes and its treatment. 1949. New York, Oxford University Press. p. 54.

** A one hundred glucose tolerance test project conducted in the Section on Oral Medicine, University of Alabama School of Dentistry (1957-1958).

respectively. The importance of this particular finding will become evident later in the discussion of Case Report #3.

In a study of 43 diabetic and prediabetic patients in the Section on Oral Medicine at the University of Alabama School of Dentistry this year, only 4 percent complained of dryness of the mouth. An examination of Fig. 1 shows that the observations in the Alabama study were not at all consistent with those described in the Barach project. The explanation for the difference is not completely apparent. However, one point is quite clear. In the Barach study, the patients were all suffering with classical diabetes mellitus. In contrast, in the Alabama study, most of the patients were found to be suffering with very early and very mild diabetes mellitus. It is also of value to point out that, in the Alabama project, the two most frequent presenting complaints were frequent and excessive urination. One can observe in the chart that approximately 14 percent of the subjects in the Alabama study mention these two symptoms. Parenthetic reference should be made to additional findings in the Alabama series including a 12 percent incidence of loose teeth[1, 2] and a 4 percent incidence each of spontaneous exfoliation of teeth[2, 10] and dry sockets[11, 12].

The effectiveness of the history in the detection of diabetes mellitus can be summarized in three statements: (1) symptoms are present in the more advanced cases, (2) neither the oral nor the general complaints are pathognomonic in that the very same symptoms may be associated with other metabolic as well as nonmetabolic disorders, and (3) in early and mild diabetes mellitus the history may be completely negative. Translated into clinical parlance, a diabetic patient may present himself in the dental office with absolutely no oral or general symptoms to indicate diabetes mellitus.

Figure 2

oral findings associated with diabetes mellitus

- oral pain
- dryness of the mouth
- coating of the tongue
- marginal lingual indentations
- diffuse erythema of oral mucosa
- gingival erythema and enlargement
- loss of gingival stippling
- gingival bleeding
- rapid deposition of calculus
- spontaneous pulpitis
- parietal root abscesses
- loose teeth
- spontaneous exfoliation of teeth
- frequent occurrence of dry sockets

CLINICAL EXAMINATION

Since the diabetic patient may come to the dentist without any complaints suggesting diabetes mellitus, the question arises as to whether one can detect oral signs of this disorder. In this regard, the investigators are divided into

Figure 3

detection of unknown diabetic and prediabetic patients in a series of glucose tolerance tests in 100 dental patients in the Alabama study

criterion	number of confirmed diabetic patients detected	number of prediabetic patients detected
glycosuria	1	0
fasting blood sugar > 160	2	0
fasting blood sugar > 140	7	0
fasting blood sugar > 120	16	0
2 hr blood sugar > 120	27	8
any blood sugar > 170 and/or 2 hr sample > 120	28	15

two camps. One group[13, 14, 15], admittedly the smaller one, claims that diabetes mellitus exerts no deleterious effects upon the periodontal tissues. They add that all of the observable alterations are purely coincidental. The other, the larger group[16], admits that periodontal changes are associated with diabetes mellitus. These have been summarized in Fig. 2. However, they add that the findings are not pathognomonic and that they probably are the result of the interplay of local factors upon the diabetic substrate[17, 18].

The effectiveness of the oral examination in the detection of diabetes mellitus can be resumed in the following three statements: (1) whatever oral signs can be attributed to diabetes mellitus or to the interplay of diabetes and local trauma occur principally in the severe diabetic state, (2) whatever oral signs are the direct or indirect effect of diabetes mellitus are nonspecific[17, 18] and may be associated with other metabolic and nonmetabolic disorders, and (3) in early and mild diabetes mellitus, clinical signs may be completely absent. Thus, a dibetic patient may present himself in the dental office with few, if any, observable signs of diabetes mellitus.

ROENTGENOGRAPHIC EXAMINATION

The evidence thus far suggests that there is little help from the history and the clinical examination in the detection of early diabetes mellitus.[19] The question now is, "What information can be obtained from the roentgenogram?" The majority of investigators[19, 20, 21, 22, 23] who have studied the roentgenograms of diabetic patients agree that alveolar bone loss is more extensive in the diabetic patient. However, there is also general agreement that the roentgenographic picture is not pathognomonic.

The value of the roentgenographic examination in the detection of diabetes mellitus can be summarized in three statements: (1) an increase in bone destruction and/or a decrease in bone formation produces a pathologic roentgenographic pattern in the more advanced cases of diabetes mellitus, (2) the roentgenographic picture in the diabetic patient is not specific

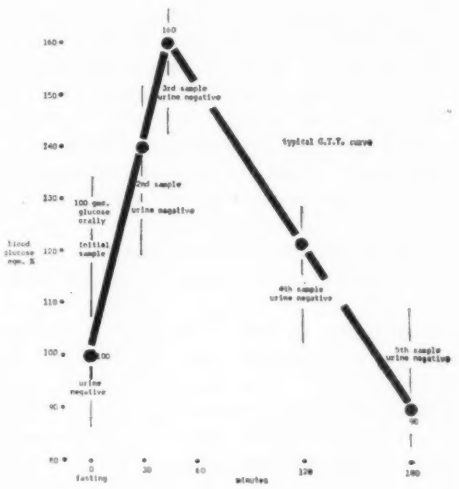

Figure 4

in that the very same pattern may be associated with other metabolic as well as nonmetabolic disorders, and (3) in early and mild diabetes mellitus the roentgenographic picture may be completely noncontributory. Hence, a diabetic patient may present himself in the dental office with no specific roentgenographic lesions to indicate the presence of diabetes mellitus.

LABORATORY EXAMINATION

It appears then that, by means of the history and the oral and roentgenographic examination, one can only *suspect* the presence of diabetes mellitus. One must then turn to the laboratory for evidence which might confirm or negate the suspicion.

The laboratory procedures which are available include: (1) the testing for sugar and other substances in the urine, (2) fasting blood sugar, (3) two hour postprandial blood sugar, and (4) glucose tolerance tests.

Urinalysis: Normally, no glucose is present in the urine except under such stress conditions as fever, excessive glucose intake, hyperthyroidism, general anesthesia, and rheumatoid arthritis. In such situations the amounts of glucose in the urine are small. When glycosuria follows

the ingestion of a carbohydrate meal and the sugar in the urine disappears or its amount is reduced in the urine by dietary carbohydrate reduction, diabetes mellitus should always be suspected. True enough, there are other types of melituria (e.g. lactosuria, galactosuria, pentosuria, and levulosuria). However, the statement can be made that the patient with glycosuria should be regarded as diabetic until proven otherwise through extensive laboratory testing.

Of interest in this regard is the procedure followed at the University of Detroit School of Dentistry. In that institution, a urinalysis is performed on every new dental patient. In a recent report[24] of a five-year study of 3122 ambulatory dental patients ranging in age from 12 to 80 and of both sexes, 43 (1.5 percent) diabetic patients were detected. Only five of these 43 persons knew that they had diabetes mellitus. In the Alabama study, every patient was examined by means of a glucose tolerance test. Of the 43 diabetic individuals detected in that series, only one (2.3 percent) had glycosuria (Fig. 3). If one could extrapolate from the Alabama study, then several hundred diabetic individuals in the Detroit study went unrecognized because only a urinalysis was performed.

The conclusion to be drawn from these observations is that, though the presence of glycosuria should bring to mind the potential of diabetes mellitus, a negative urinalysis does not exclude the possibility of diabetes mellitus.

Fasting Blood Sugar: There are those who hold that a fasting blood sugar greater than 120, 140, or 160 mgm. percent is highly suggestive of diabetes mellitus. Certainly, all investigators are agreed that an elevated fasting blood sugar is most assuredly more diagnostic than the presence of sugar in the urine. However, if one examines the chart (Fig. 3), one finds that had a fasting blood sugar of 160 mgm. percent been used as the yardstick, only two of the patients would have been suspected of suffering with diabetes mellitus. Moreover, had the criterion been 140 or 120 mgm. percent fasting blood sugar, then seven and sixteen persons would have been recognized respectively.

Two Hour Postprandial Blood Sugar: Some investigators contend that a more reliable check is the level of blood sugar two hours after a meal or a two-hour reading when the classical glucose tolerance test is performed.[25] From the Alabama study, we learn that had this criterion been used, 27 of the patients would have been recognized as suffering with diabetes mellitus.

Glucose Tolerance Tests: A tolerance test is designed to study a phenomenon when the subject is placed under some type of stress. Several different types of glucose tolerance tests are employed.[3, 26] The most popular one consists of taking a fasting blood sugar sample and urinalysis, then supplying the patient with 100 gm. of glucose orally. Exactly one-half, one, two, and three hours later blood samples and urinalyses are examined for the presence of sugar (Fig. 4) to determine how well the individual can handle this experimental load.

The criteria for a normal glucose tolerance test are still not settled. Some experts contend that the presence of glycosuria, a blood sugar of 170 mgm. percent at the peak of the curve in the one-hour sample, or failure of the blood sugar to return to normal by the two-hour sample is at least presumptive evidence of diabetes mellitus. If one accepts these criteria, then 43 of these patients in the Alabama study may be regarded as diabetic or at least prediabetic (Fig. 3).

It becomes clear that each of the criteria described is more complicated but also more sensitive. Other yardsticks, such as the adminis-

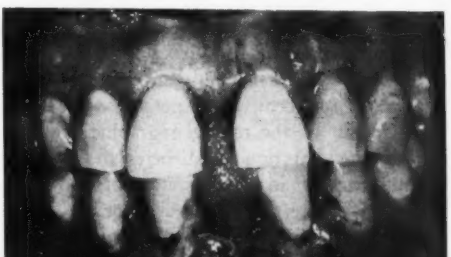

Figure 5

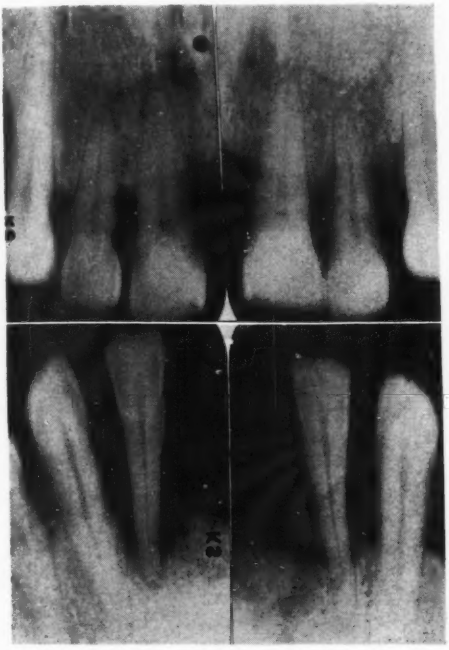

Figure 6

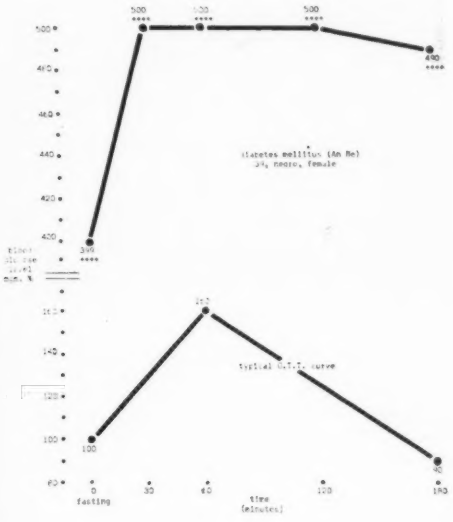

Figure 7

tration of 100 units ACTH one hour before the glucose tolerance test,[27] are also in use. However, most of these variations of the glucose tolerance test are not readily available to the private practitioner. Since this discussion is geared to the clinician, these more complicated procedures will not be considered.

CASE REPORTS

In order to bring into proper focus the general problem of the detection of diabetes mellitus in dental office, four cases will be presented from the Alabama study. The cases have much in common. However, they have been selected because each is unique in that it brings forth a point not apparent in the others.

CASE REPORT #1

This 39 year-old female was first seen in the clinic with a chief complaint of loose teeth. One and two years previously she had consulted two different dentists because of increasing tooth mobility. On both occasions a diagnosis of "pyorrhea" was made and both dentists recommended the extraction of all teeth. According to the patient, these decisions were made as a result of clinical and roentgenographic examination. Approximately four years previously, the patient had what she described as a complete physical examination by a local physician who declared her in excellent health except for obesity. According to the patient, no laboratory studies were done at that time.

Oral examination in the Oral Medicine Clinic at the University of Alabama was not particularly revealing except for marked tooth mobility (Fig. 5). Moderate amounts of calculus were present and only minimal gingival changes were observed. However, the roentgenogram (Fig. 6) revealed extensive alveolar bone loss. A glucose tolerance test showed (Fig. 7) blood sugar levels of 399, 500, 500, 500, and 490 mgm. percent fasting and at the one-half, one, two, and three hour intervals with ++++ glycosuria in all samples. For orientation purposes only,

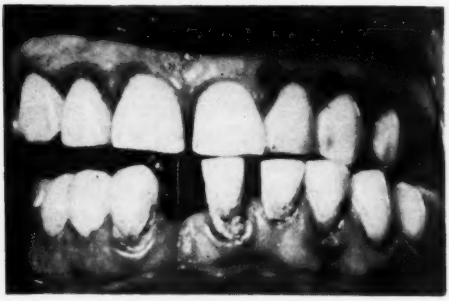

Figure 8

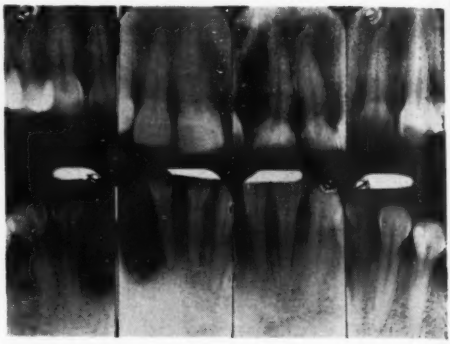

Figure 9

a so-called normal glucose tolerance pattern is also included.

A diabetic diet and insulin regime were instituted immediately. A matter of several weeks later, the teeth showed a clinically demonstrable decrease in tooth mobility. Unfortunately, full mouth extraction was still necessary.

This case is presented here for several reasons. First, it is the most severe case of diabetes mellitus encountered in the Alabama study with relatively few symptoms and signs. Secondly, it is of some interest that the diabetic state may have been operative for at least something more than two years, since the patient reported increasing tooth mobility for that period of time. Obviously, the degree of alveolar bone loss at one time must have been less than that observed when the patient presented in the clinic. Finally, despite the severe bone destruction, tooth mobility decreased when a diabetic regime was instituted.

One might, and justly so, raise the point that this is a very obvious case of diabetes mellitus which should have been rcognized somewhere along the line. Therefore, the only conclusion to be drawn is that there was a lack of clinical awareness of diabetes mellitus. But this metabolic disorder is generally encountered in a much more subtle form and the following cases are included to emphasize some of these subtleties.

CASE REPORT #2

This 43-yearold female was first seen in the clinic with a chief complaint of loose teeth and gingival bleeding. The symptoms had been present for approximately six years with increasing mobility of the teeth during this interval of time. There was definitely no history of polyphagia, polyuria, nor polydipsia.

The marginal gingiva was slightly erythematous and edematous with loss of gingival stippling (Fig. 8). One lower molar had been extracted because of "pyorrhea" approximately six years previously. The right lower incisor had exfoliated spontaneously one year ago. The extent of bone loss is shown in the roentgenograms (Fig. 9).

A glucose tolerance test revealed (Fig. 10) blood sugar levels of 139, 205, 205, 127, and 80 mgm. percent with all urine samples free of glucose. She was referred to the Diabetic Clinic where diabetic diet and insulin were prescribed. Several weeks later, she reported a decrease in gingival bleeding and tooth mobility. During the Christmas season, with the usual holiday diet, her tooth mobility increased. With a return to her diabetic diet and insulin, tooth mobility again decreased.

There are several features of this case which are similar to the case report previously described. First, the chief complaint in both instances was increasing tooth mobility. Secondly, there is a glaring absence of the classical symptoms and signs of diabetes mellitus. Thirdly, under a diabetic regime and insulin, tooth mobility decreased clinically in both patients.

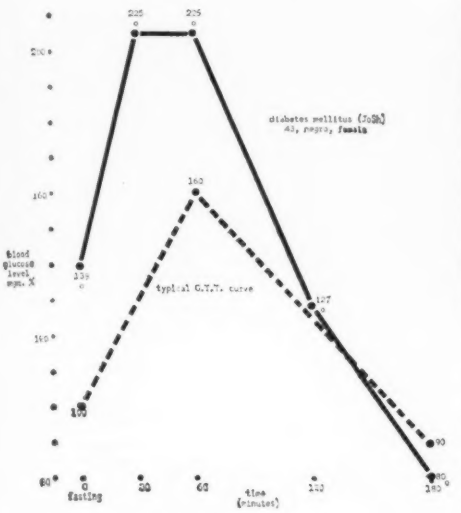

Figure 10

But, beyond this point, there are differences between these two individuals. First, the disease process in this patient progressed much more slowly than in the first individual. The history of a six-year illness versus one of approximately two years' duration is clear. Secondly, the more severe glucose tolerance pattern in the first case suggests a difference in severity of the disease process. Thirdly, the last patient presented with a complaint not previously discussed—that of spontaneous exfoliation of teeth.

CASE REPORT #3

Thus far, the emphasis has been upon the finding of clinical tooth mobility and so-called "pyorrhea." Actually, diabetes mellitus may make its debut by way of other oral symptoms and signs. The following case demonstrates this very point.

A 28 year-old soldier appeared in the clinic with a chief complaint of marked pain and coating of the tongue of approximately seven months' duration (Fig. 11). The patient, stationed in Birmingham where there are no Army medical facilities, had been referred by the

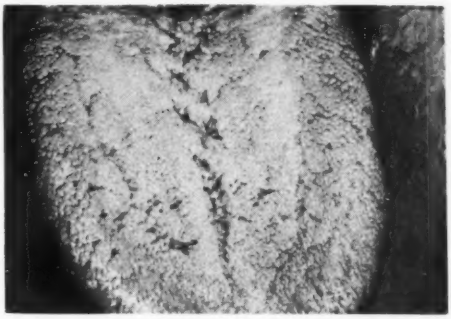

Figure 11

Army to a civilian physician in the area. He was told that he was suffering with trench mouth and was given one or two injections of penicillin. The complaints subsided somewhat for a day or two but returned in about one week. Following three more penicillin injections, the tongue complaints once again lessened but increased again in fourteen days. The third time he was given penicillin parenterally and simultaneously in troche form. Since there was no lasting improvement, he visited the nearest Army medical facility. There he was told that he was suffering with gingivitis and a prophylaxis was done. This caused little change in his complaints so he revisited the original physician who this time unsuccessfully treated the mouth with gentian violet and chromic acid. It was then that he was referred to the Oral Medicine Clinic.

The initial findings in the clinic revealed the

Figure 12

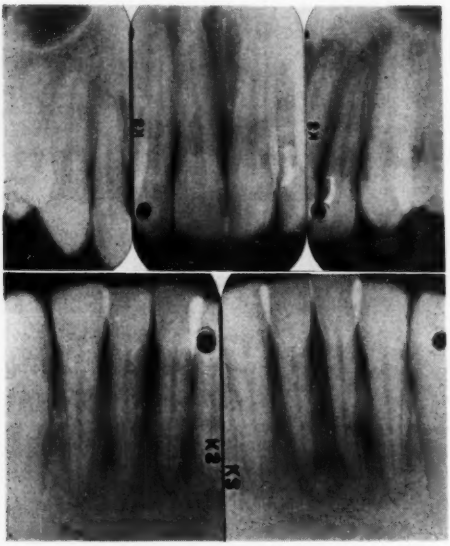

Figure 13

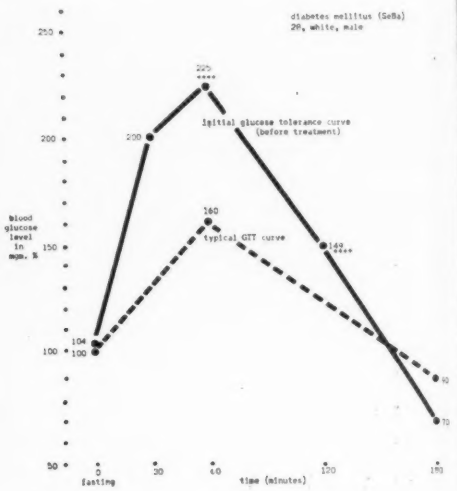

Figure 14

following: (1) a story of unusual fatigue, (2) a history of poor citrus intake, (3) a painful, coated tongue, (4) minimal gingival findings, and (5) a history of an uncle with diabetes mellitus (Fig. 12). There was definitely no polyphagia, polydipsia, polyuria, nor weight loss. The roentgenograms (Fig. 13) showed no significant alveolar bone loss.

A glucose tolerance test (Fig. 14) was done disclosing values of 104, 200, 225, 149, and 70 mgm. percent fasting and at the one-half, one, two, and three hour intervals. All of the urine samples were negative except for ++++ glycosuria in the one and two hour samples. As part of a study to quantitate looseness of teeth in diabetes mellitus, tooth mobility was measured with the Mühlemann periodontometer.[28] This is a device whereby a known force, in this case 500 gm., is applied to the labial surface of a tooth and the amount of palatal deflection is recorded in hundredths of a millimeter. Then the force is directed from the palatal surface of the same tooth and the amount of labial shift is measured. By means of this procedure, a record was made of the deflections of the four maxillary teeth which clinically showed no tooth mobility. At this initial examination (Fig. 15), the right lateral incisor showed a palatal deflection of .092 mm. and a labial deflection of .113 mm. These values are indicative of considerable subclinical tooth mobility.[29] Additional studies (Fig. 16) showed a fasting plasma ascorbic level of .35 mgm.

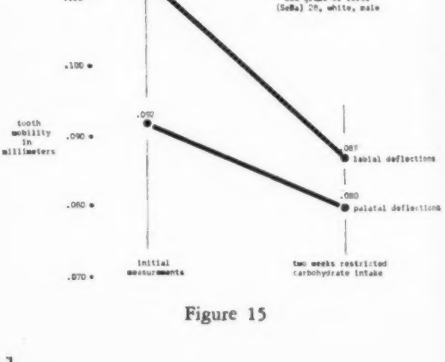

Figure 15

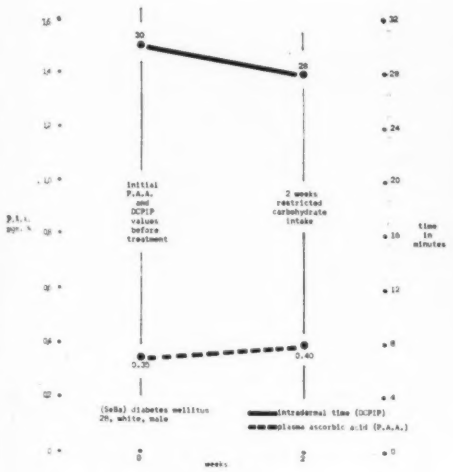

Figure 16

Figure 17

percent and an intradermal ascorbic acid decolorization test time of 30 minutes—both indicative of a mild to moderate ascorbic acid deficiency.[30]

Because of the glucose tolerance pattern, the patient was placed on a low carbohydrate diet. Two weeks later, he reported that he had lost ten pounds, he was not fatigued, and his tongue was no longer coated nor painful (Fig. 17). A repeat glucose tolerance test disclosed values of 100, 192, 196, 143, and 80 mgm. percent with no glycosuria in any of the samples (Fig. 18). The fasting plasma ascorbic acid level and intradermal time were approxmately the same (.40 mgm. percent and 28 minutes), as shown in Fig. 16. Of particular interest is the fact that the tooth which had previously shown a palatal and labial deflection of .092 and .113 mm. had decreased to .080 and .087 mm. respectively (Fig. 15). These reductions in tooth mobility are consistent with observations at the University of Alabama in connection with subclinical tooth mobility and other systemic diseases.[29]

Because of the ascorbic acid deficiency, it was felt that it would be of interest to observe the effects of vitamin C supplementation. Accordingly, 1000 mgm. of ascorbic acid daily were prescribed for two weeks in addition to the low carbohydrate regime.

The patient returned two weeks later to report that the tongue coating had returned but that there had been no recurrence of lingual pain or fatigue (Fig. 19). A glucose tolerance test was done showing values of 111, 181, 243, 156, and 60 mgm. percent with a ++ glycosuria in the two and three hour samples (Fig. 20). Meanwhile, the fasting plasma ascorbic

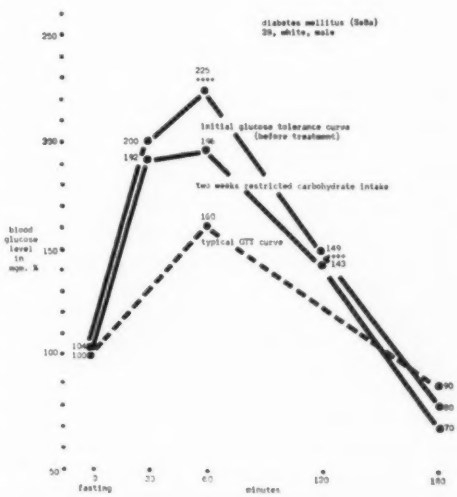

Figure 18

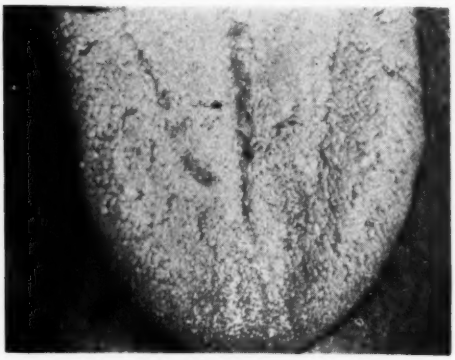

Figure 19

acid level had increased from .40 to 1.33 mgm. percent (a rise of 330 percent) and the intradermal time had decreased from 28 to 15 minutes (a drop of 50 percent). These changes are graphically depicted in Fig. 21. Interestingly enough, the right lateral incisor had further decreased in tooth mobility as noted by values of .068 and .085 mm. palatally and labially respectively (Fig. 22).

There are several features of this case in common with the previously described case reports. First, all three individuals were suffering with diabetes mellitus. Secondly, there is still a glaring absence of the classical diabetic symptoms and signs. On the other hand, this case is different in many respects from the others. First, we are dealing here with a young man in contrast to the two middle-aged females. Secondly, the presenting complaint here is quite different—namely, a painful, coated tongue in place of increasing tooth mobility and periodontal disease. Thirdly, we learn from his course that in mild to moderate diabetes mellitus, simple carbohydrate restriction can lead to clinical and laboratory evidence of improvement. This is shown by the disappearance of lingual pain and coating, an improvement in the glucose tolerance pattern, and even a decrease in subclinical tooth mobility. Fourthly, it is of some interest that the chief complaint was actually dryness of the mouth. which the patient reported as an increase in lingual coating. Lastly, we are presented with the fact that

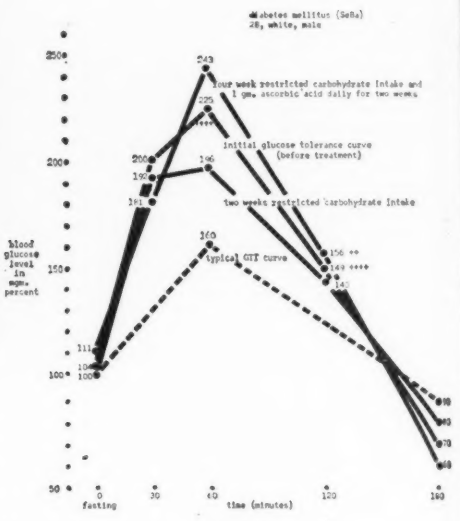
Diabetes mellitus (SeBa)
28, white, male
Four week restricted carbohydrate intake and 1 gm. ascorbic acid daily for two weeks
Initial glucose tolerance curve (before treatment)
two weeks restricted carbohydrate intake
typical GTT curve
Blood glucose level in mgm. percent
fasting
time (minutes)

Figure 20

the addition of ascorbic acid, which, is actually a sugar, reversed the pathophysiologic sequence of events by elevating the glucose tolerance curve and a simultaneous return of one of the patient's prime complaints — namely, tongue coating.

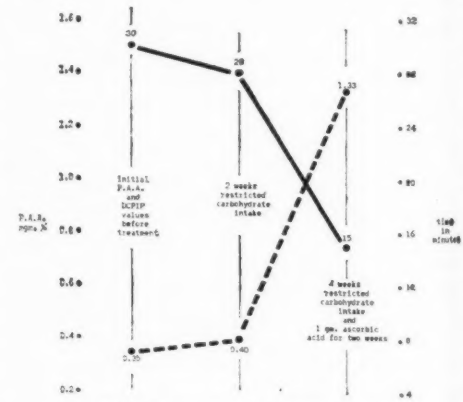
Initial P.A.A. and DCPIP values before treatment
2 weeks restricted carbohydrate intake
4 weeks restricted carbohydrate intake and 1 gm. ascorbic acid for two weeks
(SeBa) diabetes mellitus 28, white, male
intradermal time (DCPIP)
plasma ascorbic acid (P.A.A.)
weeks

Figure 21

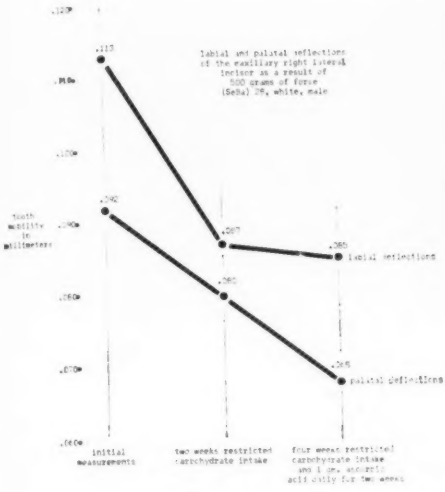
labial and palatal reflections of the maxillary right lateral incisor as a result of 500 grams of force (Seba) 25, white, male
tooth mobility in millimeters
.113
.092
.085
labial reflections
.060
.045
palatal reflections
initial measurements
two weeks restricted carbohydrate intake
four weeks restricted carbohydrate intake and 1 gm. ascorbic acid daily for two weeks

Figure 22

Figure 23

CASE REPORT #4

A very common and disappointing observation in the dental office is the patient who is told that all of his good teeth must be removed because of "pyorrhea." A technically satisfactory denture is then fabricated. But the patient returns constantly with minimal but annoying complaints which keep him from wearing the prosthetic appliance. This last case depicts the problems encountered in just such an individual.

A 61 year-old female was referred to the Oral Medicine Clinic with this very story. Oral examination was not especially contributory (Fig. 23) and the denture appeared mechanically adequate. She contributed a story of being under the care of a physician for about a decade because of cardiac decompensation. For about 10 to 12 years she had observed progressive loosening of her teeth and "pyorrhea." Ten years previously she had 18 noncarious teeth. Despite continued and progressive loosening of her teeth and increasing bleeding, edema, and gingival recession, two years ago there were still 14 teeth remaining. These were extracted and complete dentures made. The lower appliance required almost immediate relining. Shortly thereafter, the upper denture became loose. Additional findings included: (1) inability to eat acid foods because they caused burning, (2) a very definite history of polyuria and polydipsia for ten years, (3) polyphagia for approximately four to five years, (4) a history of a diabetic brother, and (5) a story that her second daughter started to wear full dentures at age 32 and four of that daughter's seven children have been completely edentulous since the ages of 15 to 17.

A glucose tolerance test was performed (Fig. 24) showing values of 170, 250, 277, 272, and 250 mgm. percent with ++ glycosuria in the 60 minute sample and ++++ in the two and three hour specimens. Her physician, under whose care she had been for most of the past ten years, was accordingly informed. She was placed on a diabetic diet and given Orinase. She returned to the clinic about six weeks later to report that the dentures were much more satisfactory, though still inadequate, and that acid foods no longer irritated her mouth. A glucose tolerance test was again performed (Fig. 25) showing values of 142, 210, 235, 178, and 138 mgm. percent with ++++ glycosuria in the two hour specimen and only a trace of glucose in the one and three hour samples.

This case has much in common with the other three already discussed. First, improvement followed the introduction of a diabetic regime as judged clinically by her ability to tolerate the very same denture as well as acid foods better. Further, there was laboratory proof of improve-

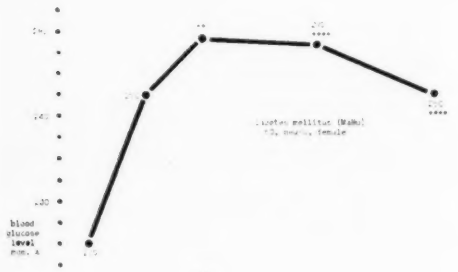

Figure 24

Figure 25

ment as judged by the glucose tolerance pattern. There is no question but that her diabetic state can still be improved. However, this aspect of the problem is not relevant to this discussion. More important, this case calls attention to a number of features of diabetes mellitus not hitherto considered in the other cases. First, the patient probably was diabetic ten or more years previously as judged by the increased thirst, appetite, and urination. Secondly, all of these general and oral symptoms were present during her medical and dental examinations for the decade. Thirdly, the teeth were extracted and the dentures fabricated to solve a problem. However, since the basic disease process went unrecognized, the problem remained. Finally, it is of interest that the very same denture proved less traumatic to the tissues when the diabetic substrate was partially improved.

SUMMARY

1. There are 1,000,000 known diabetic patients and another 4,000,000 people now living in the United States who will probably develop diabetes mellitus. Hence, a sizable number of diabetic and prediabetic people each day are walking in and out of dental offices.
2. By means of the history, clinical and roentgenographic examination, one can only *suspect* diabetes mellitus. *Confirmation,* at the present time, is only possible through laboratory tests.
3. The presence of glycosuria should be regarded as evidence of diabetes mellitus. However, the absence of sugar in the urine cannot be interpreted to mean that the patient is not diabetic.
4. The most reliable, practical, clinically-adaptable laboratory tool is the glucose tolerance test.
5. To underscore the methods of detection of diabetes mellitus, four cases have been included—each designed to emphasize a particular feature of the disease process.

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LE PROBLEMA DE DIABETE MELLITE IN LE PRACTICA DENTAL

per Dr. med. e med. dent. E. Cheraskin

SUMMARIO IN INTERLINGUA

Es interessante que, in le curso del passate vinti annos, circa sexanta articulos super le thema de diabete mellite esseva publicate in le litteratura dental de lingua anglese. Inter istos, circa vinti esseva de character original. Le alteres esseva revistas con sporadic reportos de casos e restringite numeros de studios animal.

Le presente reporto visa a summarisar (1) le magnitude del problema de diabete mellite e (2) le methodos disponibile pro le detection del patiente diabetic in le sala de consulta dental.

1. Un million cognoscite diabeticos vive currentemente in le Statos Unite e quatro milliones qui probabilemente va disveloppar diabete mellite. Ergo un numero considerabile de diabeticos e prediabeticos visita omne die nostre salas de consulta dental.

2. Super le base del historia del patiente e de examines clinic e roentgenoscopic il non es possibile facer plus que suspicer diabete mellite. A iste tempore, le confirmation del morbo es possibile solmente per medio de tests de laboratorio.

3. Le presentia de glycosuria deberea esser reguardate como un prova de diabete mellite. Tamen, le absentia de sucro in le urina non pote esser interpretate como un prova contra le presentia de diabete in le patiente.

4. Le plus fidel, practic, e clinicamente adaptabile instrumento laboratorial es le test de tolerantia pro glucosa.

5. Pro signalar le methodos de detection de diabete mellite, quatro casos es reportate. Illos es seligite de maniera que cata un illustra un aspecto particular del processo pathologic.

BASIC STUDIES IN CALCIFICATION

MARIE U. NYLEN, D.D.S. AND DAVID B. SCOTT, D.D.S., M.D.*

Recent advances in methodology have provided an impetus for the initiation of a surprisingly large and varied group of studies on calcification. At the present time, physical methods such as electron microscopy, microradiography, and various types of diffraction, as well as radiotracer techniques, advanced histochemical methods, and precise microanalytical procedures, are all being exploited. Virtually every tissue which undergoes mineralization is under examination, the foremost being bone, primarily because of its important biological position. Furthermore, since the major portion of the organic bone matrix is collagen, an opportunity is afforded to make use of the mass of information on the structure and properties of this protein which has been derived primarily through the investigation of other connective tissues.

The fact that collagen is a major component of almost all connective tissues constitutes one of the points of departure in recent studies of calcification. Why does one collagenous tissue calcify and not the other? Are there actual differences in the collagen or is mineralization mediated by the presence or absence of certain factors in the surrounding ground substance?

Collagens from various types of tissue and different species are identified on the basis of chemical, X-ray diffraction and electron optical data (1). While differences exist, particularly on the chemical level, it has not been possible to relate positively any specific features, chemical or physical, to calcifiability. Microanalytical and histochemical investigations, on the other hand, have tended to emphasize the existence of a local factor, although so far no definite conclusions have been reached (2, 3). Historically, alkaline phosphatase was the first substance implicated, and mineral deposition was thought to be due to a local elevation in phosphate ion concentration following enzymatic action (4). From later evidence it now appears that the enzyme is not involved specifically in mineralization, but may play a part in matrix formation and even bone resorption (5, 6, 7).

At present, mineralization is thought to take place through a seeding out process rather than as a result of local changes in ion-concentration (8). According to this idea other crystals already present serve as nuclei for the induction of apatite crystal formation. In bone, collagen or some other crystalline organic material could serve as such a nidus. This concept, however, does not in itself explain calcifiability any more completely than the earlier one. For example, unless some as yet unrecognized differences exist in the ultra-structure of various collagens which do and do not calcify it is necessary to postulate the existence of an inhibitor to explain why all collagen does not mineralize.

The presence of an inhibitor in the ground substance has, in fact, been proposed by Glimcher, among others (9). When he placed freshly dissected collagen fibers from rat tail tendon in a metastable solution of calcium and phosphate ions, mineralization did not occur. On the other hand, if the tendon fibers were dissolved in acid, the morphologically identical collagen fibrils which could be reconstituted from the solution actually mineralized under similar conditions. In other words, tail tendon itself could not be made to calcify in vitro, but the collagen recovered from it could. He attributed this difference in reaction to a non-collagenous component in the ground substance of intact tendon which might be responsible for the inhibition and control of

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calcification.

In the same investigation Glimcher demonstrated the importance of the arrangement of the collagen molecules. When dissolved in acid, collagen can be precipitated in its native form, which is characterized by a 640A cross banding. It is possible by changing the reagents, however, to produce fibrils with completely different spacings, as a result of variations in the alignment of the molecules (10). When the different types of fibrils were placed in the metastable calcifying solution only the fibrils with 640A striations were capable of inducing formation of hydroxy-apatite crystals. This specific arrangement of the collagen molecules must be of fundamental importance in mineralization, at least in *in vitro* systems. It should be recalled, on the other hand, that calcification does occur *in vivo* in a tissue which contains collagen fibrils without the 640A axial repeating period, e.g. cartilage.

In histologic investigations of the calcified tissues the morphological configurations of the crystals and their relationship to the collagen fibrils have been studied at the electron microscopic level. Crystal size and orientation have also been investigated by X-ray and electron diffraction. There has been some disagreement with regard to crystal size and shape in bone and dentin. Either platelets (11, 12) or needle-like (13-16) crystals have been described, the dimensions of the latter corresponding quite well with those obtained by X-ray diffraction (15, 17).

It has been generally agreed that the mineral is deposited not only between the collagen fibrils and on their surfaces, but also inside them (12, 18, 19). Mineralization is supposed to begin at the surface. Initial crystallization may be haphazard, but eventually the crystals are laid down in a direct relationship to the collagen cross banding, with their C-axes paralleling the fibril axes (11, 12, 13). So far as the relation between crystals and collagen striations is concerned, two different opinions have been voiced. The first crystals are said to be deposited on the bands (12), and oppositely, between the bands (9, 18). On a gross scale, mineralization starts in individual centers which gradually expand and finally coalesce.

Although the collagen fibrils in certain bones may be present in parallel arrangement, they more often take the form of a network. This makes it difficult to visualize clearly the interrelationships between the organic and inorganic phases. In an effort to find a simpler "model tissue" our attention was drawn to the mineralizing turkey leg tendon, in which the collagen fibrils comprising the organic matrix are originally organized in a perfectly parallel arrangement. It was subsequently found that a number of changes take place in the tendon during mineralization which tend to disrupt this alignment, but enough areas of calcified "original" tendon collagen are present to justify the selection of the turkey leg tendon as a model tissue (20, 21, 23).

Microradiographic studies indicated that the first mineralization of these tendons takes place when the turkeys are 15-16 weeks old. Examination of thin-sections of such specimens under the electron microscope revealed a calcification pattern similar to that observed in human bone. Thus, mineralization begins in individual foci which gradually expand and finally cover large areas (Fig. 1). Within a single focus the first crystals appear on the surface of the fibrils, where they are deposited without special relation to the collagen cross banding. As mineralization progresses crystals are laid down in parallel rows across the interior of the fibrils in a pattern reminiscent of the striations of collagen (Fig. 2). The particles are about 350A long and 200A wide, with the rows about 300A apart. That they are in fact single crystals was established by limited area diffraction. By the same means the crystals were found to be preferentially oriented, with their C-axes parallel to the main fibril direction.

The striation pattern produced by the arrangement of the first crystals in rows is retained for some time, even when additional crystals are deposited between and over the original ones. Eventually the bandings become obscured and the tendon appears as a solid mineralized mass (Fig. 3).

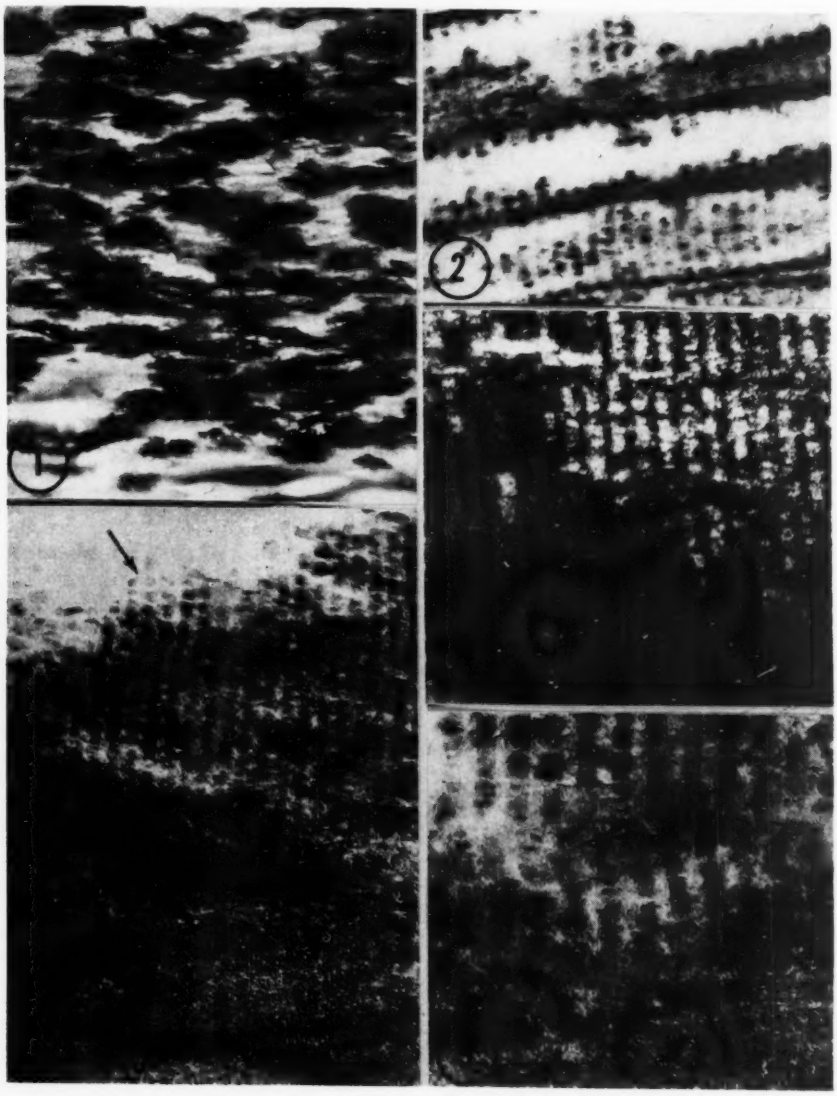

Figure 1. Early stage of mineralization in turkey leg tendon. Between individual foci, which appear dark in the micrograph, are areas of non-calcified tendon fibrils. This and the following micrographs are oriented so that the fibrils run horizontally. X6,000.

Figure 2. Uninterrupted layers of mineral between fibrils and beginning deposition of crystals in parallel rows across the fibrils. X40,000.

The initial crystal deposit within the fibrils lies in the interband regions (Fig. 4), and it would thus appear that the pronounced banding observed in the early and intermediate stages of mineralization represents an inversion of the original striation pattern of the collagen itself.

While the first crystals laid down are of the platelet type (Fig. 3), the majority of those deposited in the intermediate and later stages are needle-like, being 200A to 1500A in length and less than 50A in diameter (Fig. 5). As the size and shape of non-biological crystals in general depend on both rate of crystallization and space available, it is possible that the geometrical configurations of the crystals in the mineralizing turkey tendon, as well as in other tissues, are regulated by these two factors. This would probably mean that the form and dimension of the crystals within collagen fibrils are influenced by the spacings of the component protofibrils. In the interfibrillar areas, particularly where the collagen fibrils form a network, and in a tissue with a different fibrillar matrix such as enamel, other limitations may apply.

In a histochemical investigation of similar turkey tendons it was shown that initiation of calcification was associated with the appearance of both polysaccharides and phospholipids in the ground substance surrounding the collagen fibrils (20) Chemical analyses of the tendons before and after the beginning of calcification showed no difference in the composition of the collagen (22), and no change in fibrillar morphology was revealed by the electron microscope. This suggests that while the structure and chemical composition of the collagen remain quite constant its affinity for mineral may be induced by changes in the ground substance. The observations on the calcification process in the turkey leg tendon thus tend to support the evidence which assigns an important role in mineralization to the non-collagenous components of organic matrices. Whether these may be positively acting substances, promoting mineralization in tissues destined to calcify, or inhibitors, preventing mineralization in non-calcifying tissues, still remains to be determined. Considerably more observation and experimentation will be required before the intricate mechanisms of mineralization can be completely understood.

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Figure 3. Three typical stages of mineralization observed in calcification foci. At periphery, early deposition of platelet-type crystals (arrow); in intermediate region, enhanced striation pattern due to further mineral deposition; and in center, loss of striation pattern due to highly advanced mineralization. X40,000.

Figure 4. Edge of a calcification focus showing localization of first crystals in interband regions. This electron micrograph has been printed in reverse to bring out more clearly the relationship between the crystals now appearing in white, and the bands (B) and interbands (I) of the collagen fibrils. X53,000.

Figure 5. The intermediate and center regions of a calcification focus showing at higher magnification an increased number of needle-type crystals with higher advanced mineralization. X75,000.

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STUDIOS FUNDAMENTAL RELATIVE AL CALCIFICATION

per Marie U. Nylen e David B. Scott

SUMMARIO IN INTERLINGUA

Recente progressos methodologic ha stimulate le initiation de un surprendentemente grande e variate gruppo de studios relative al calcification. Currentemente varie methodos physic es exploitate, incluse electronomicroscopia, microradiographia, e plure typos de diffraction, si ben como technicas a isotopos radio-traciatori, avantiate methodos histochimic, e precise proceduras micro-analytic. Quasi omne genere de tissu que pote experientiar mineralisation se trova sub investigation. Le prime e plus importante inter illos es le osso, principalmente in consequentia de su significativissime position biologic. In plus, viste que le portion major del matrice organic de osso consiste de collageno, le opportunitate se presenta de utilisar le massa de informationes relative al structura e al proprietates de iste proteina le quales esseva derivate primarimente in le curso de investigationes de altere typos de tissu conjunctive.

Le facto que collageno es un major componente de quasi omne tissus conjunctive constitue un del punctos de partita in recente studios del calcification. Proque se calcifica un tissu collagenose e non le altere? Existe il de facto differentias in le collageno, o es le mineralisation mediate per le presentia o absentia de certe factores in le ambiente substantia fundamental?

PAIN AND ITS EMOTIONAL IMPLICATIONS*

Meyer Sonis, M.D.

In the preparation of this paper I was plagued constantly in attempting to find a focus for my brief discussion and comments. The question arose in my mind as to whether this paper should be an academic, erudite presentation, with much objectivity and experimentations cited as validating factors. The question arose as to whether this should be an anecdotal presentation to illustrate the theme of pain and its emotional implications. The question arose as to whether this paper should be presented at all, since all of us would agree that pain has emotional implications. A perusal of your program today indicated that the specific nature of pain would be amply and adequately covered by an expert group. Therefore I assumed that the neural processes involved in pain, the physiological mechanisms of pain, the mediating fibers of pain from the site of origin to the central recognizing organ, would be amply covered. With this assumption, I settled my dilemma by a decision to speak of the complicated nature of pain. To speak on the one hand of the complicated nature of pain in our patients, and on the other hand of the complicated nature of our role as helpers and relievers of pain.

Let me begin my presentation with two stories.

THE STORY OF MARTIN

The first story is that of a 13 year old white boy, Martin. He came from a family of two parents and two older siblings, all of whom lived in an environment of reality and emotional deprivation. His parents were people with concern and interest in their children, who worked hard to provide for the family and who were eager that their children achieve and become adequate and produce. This boy had a normal physical development with the usual childhood diseases, and on the whole was physically normal. However, he was and had been smaller than other boys of his age, and over a period of years had not been as competent in sports as other youngsters, had not been as academically bright as his brothers, and had not been as physically pleasant looking as his brothers. Over this period of years he had developed tremendous feelings of inadequacy, and he generally felt like the ugly duckling of the family and his peer group. He viewed himself, on the one hand, as a defective child, while on the other hand had an image of himself as quite superior. This superior view of himself grew out of a reputation of competence he had amassed for himself in a specific area of endeavor. He felt tremendously proud of this adequacy and wore this victory like a crown on his head. This specific skill he had developed gave him stature, and despite his smallness he was able to walk around as if he were 10 feet tall. This skill he had developed was in the area of being able to tolerate pain for a longer period of time than other children. Specifically he could allow any child to press his thumb backwards until it touched his forearm, he could allow any child to flex his whole hand towards his wrist without asking them to stop because of pain. He had found that most other children would "chicken out" because of the pain or the fear of damage. In brief, he could tolerate more pain and fear than other children, and in his eyes he believed that this proved him as adequate as any other boy, as good as his brothers, and as pleasing to his parents as his brothers. Only as he understood that adequacy as a boy is not dependent on the amount of pain tolerated, on the shape of the head, on the size of the body, or the size of the penis, did he discover that these measures are signs of difference from others rather than signs of inferiority or superiority.

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THE STORY OF JOEY

Now to the other story. The story of Joey. Joey was a 3 year old white boy when I first met him. He was the youngest of 2 boys having an older brother of 9. An older brother who was described as a model child, doing well in school and at home, and on the whole was a conforming, pleasing well-mannered youngster, who really did not ask too much of his parents now or when he was small. Joey's parents were both intelligent, cooperative, pleasant and concerned parents. Joey's mother, however, was a woman who found it difficult to be spontaneous and very much needed things to be orderly, organized, neat, and was a master at following rules. She herself was rather dependent on her own mother and when it came down to it she felt her mother was more adequate than she. From birth on, Joey was a problem: there was colic, irritability and restlessness, frequent bouts of vomiting and frequent changes of formula, frequent calls to their physician (as many as 8 calls in one day) during his first year of life; it was difficult for his mother to comfort him, and it was also frustrating to her in the demands she was feeling; as he reached the age of two he showed comparatively normal development insofar as sitting, crawling, standing alone, walking, talking, and had begun to babble, imitate and speak words at a comparatively normal age. However, by the time he was 3 his parents had noticed that his speech was not progressing, and in fact was regressing to the point that he spoke very seldom, said some words, made himself understood by pointing, etc. It is also interesting to note that by this time Joey was also spending much of his time playing with a record player which he could manipulate well, and could choose specific records from a pile and play the same records for hours on end. In addition to this repetitive record playing, Joey did not seem to respond to human contact, had become interested in parts of a person rather than the person himself, was fascinated by shoes and feet, "seemed to look through a person and not at them," did not play with other children, and had bizarre movements of arms and grimaces of the face. It is also significant to add that Joey had a history of physical pain insensitivity. On one occasion he had a severe middle ear infection (normally very painful) which no one was aware of until the drum burst to exude the pus. On another occasion he had an abcessed tooth, with swollen face and fever but gave no overt evidence of distress. The dentist also reported that Joey seemed insensitive to procedures that most children react to.

JOEY — INFANTILE AUTISM

In brief then, by the time I saw Joey he had a classical history and picture of infantile autism, with previous pediatric, neurological, and laboratory examinations that were within normal limits. During the course of my contact with Joey, he would spend much of his time playing with one toy in the corner for hours, would become fascinated with my shoe and spend time fondling, licking, touching and examining it, occasionally show interest in his surroundings, was mute, very seldom showed any facial awareness of feelings of pain or pleasure. At one point during an interview he had climbed onto a ledge of a window, slipped, hit his chin and bled profusely but continued his activity until I intervened with medical treatment; at another point during treatment he caught his hand and arm in the wringer of a washing machine at home without giving any sign of distress though his mother was in the same room with him; at another point during my contact with Joey, in our waiting room he had caught his fingers in a very heavy all glass swinging door, and remained there without any indication of distress until his parents noticed him. And so the story goes on. There are many Joey's with similar severe childhood psychiatric disorders, who also show this aberrant pain reaction. Let me quote a few examples from a paper by Dr. William Goldfarb[1] on his experience with schizophrenic children in treatment at an in-patient psychiatric hospital for children:

> "Alice caught her finger in the door. The tip was cut and the finger was swollen and blue. She did not cry at the time of the accident or when the wound was dressed.

Later, she was observed smilingly looking at the finger with no report of pain."

"Jane was observed in the classroom. She was particularly withdrawn today, seemed anxiously distressed and kept asking for her Mommy. She was found sitting on a hot radiator with no apparent awareness of the heat. The teacher found the radiator so hot that she could not keep her own hand on it."

"Dan is a most dramatic example of a child lacking an internalized control apparatus. He is preoccupied 24 hours a day with external methods for controlling his impulsivity. He asks the adults to lock the doors to keep him from running away. Similarly, he announces the fact when he anticipates that he will be destructive or assaultive. These announcements are always taken seriously and suitable adult controls are supplied to him. Frequently, when in a frustrated rage, he bites his hand till he bleeds, and with no apparent awareness of pain."

"Ben indulges in few activities, but has a preference for cutting any available material with scissors. Today, the teacher reported, "Benny came to me with scissors and asked me to cut. He was cutting the palm of his left hand till he had produced a bleeding gash. He showed no reaction to pain, even when the gash was cleaned."

"This was exemplified by Roy, who was found listless and febrile one day. He could not walk because he could not put any weight on his right leg. Examination by the doctor revealed a hot, swollen knee diagnosed as an infectious arthritis. He denied pain, and active palpation and motion produced no complaint of tenderness. On the other hand, when his mother visited him Roy began to cry and complain loudly of the pain and tenderness of his knee."

All of these children are examples of severe emotional disorders in which the withdrawal of the child into their own world is so total, so pervasive that ordinary painful stimuli which usually elicit some communication from a normal child are absent or diminished.

The intent of these stories and illustrations is not for the purpose of demonstrating or discussing the etiology, pathology, diagnosis or treatment of the disorders, but for the purpose of setting the stage in the discussion of the complicated nature of pain.

Many questions may be raised about these children. Questions that have a bearing on the theme of your institute today. Do these children have neurological disorders of some sort? Do these children have an increased threshold of pain perception? Do these children have an asymbolia for pain as described in the literature of some 30 years ago? Are the chemical processes at the neuron level deficient or impaired? Or do these children, the Joeys and Martins pose the need for greater understanding of the complicated nature of pain.

THE COMPLICATED NATURE OF PAIN

It would seem that for too long we have paid attention to that specific part of the body in which the pain is felt; and too often have concerned ourselves with the specific modalities, mediators, and relievers of pain. It would also seem that we have not paid sufficient attention to the relation of this sensation to the body as as a whole and to the total personality.

We have approached our patients in pain, as if the perception of pain and the reaction to it can be pure unencumbered sensations. The truth of the complicated nature of pain is self evident when we see our patients (child or adult) facing a minor experience as if a major catastrophe has befallen them, or vice versa in the example of the patient who faces a major experience as if it is an every day occurrence.

The truth of the complicated nature of pain is self evident when we attempt to gain insight into the aberrant pain reactions of the Joeys and Martins, and discover that for each of these children the usual expected pattern of flight or fight from painful stimuli is absent or diminished. Instead of this expected, almost embedded pattern in the human, we find that toleration of pain has become equated in the mind of one child with the image of himself as big, strong, powerful and adequate. In the

other child we find that the perception of pain and the communication of this distress has become equated with his need to avoid the impact of any sensation or stimulus.

The truth of the complicated nature of pain is self evident when we find that all humans have equated pain with a variety of other sensations: "our feelings are hurt," we "ache" when we are sad and depressed; we laugh until it "hurts"; "love is painful at times"; in some humans, pain becomes pleasureful, as in the masochistic male whose orgasm is increased with flagellation; in many humans pain becomes the means of securing attention, being "babied," coddled, taken care of, and allows us the right to all of the dependency we ordinarily do without.

How come that this has taken place? How come that so simple and life saving a pattern of flight or fight has become so complicated? Much has been written in the literature over the years in attempting to answer this question. Much still needs to be written.

Such an attempt at answering this question is seen in the work and writings of Dr. Paul Schilder.[2] In a book entitled "The Image and Appearance of the Human Body," published in 1950, he states: "I tried to study those mechanisms of the central nervous system which are of importance for the building up of the spatial image which everybody has about himself. It was clear to me at that time (1923) that such a study must be based not only on physiology and neuropathology, but also on psychology. It would be erroneous to suppose that phenomenology and psychoanalysis should or could be separated from brain pathology. It seems to me that the theory of organism could and should be incorporated in a psychological doctrine which sees life and personality as a unit." In this book, Dr. Schilder attempts to empirically lay down a scheme for the development of the human in his totality, so as to give us some insight into the relationship of the various sensations to the total body and vice versa. In this book he states and I quote "The image of the human body means the picture of our own body which we form in our mind, that is to say the way in which the body appears to ourselves. There are sensations which are given to us. We see parts of the body-surface. We have tactile, thermal, pain impressions. There are sensations which come from the muscles and their sheaths, indicating the deformation of the muscle; sensations coming from the innervation of the muscles; and sensations coming from the viscera. Beyond that, there is the immediate experience that there is a unity of the body. The unity is perceived, yet it is more than a perception. We call it a scheme of our body or bodily scheme. The body scheme is the tridimensional image everybody has about himself. We may call it "body image." The term indicates that we are not dealing with a mere sensation of imagination. There is a self appearance of the body. It indicates also that, although it has come through the senses, it is not a mere perception. There are mental pictures and representations involved in it, but it is not mere representation. Dr. Head writes: "But, in addition to its function as an organ of local attention, the sensory cortex is also the storeroom of past impressions. These may rise into consciousness as images, but more often, as in the case of special impressions, remain outside of central consciousness. Here they form organized models of ourselves, which may be termed "schemata." Such schemata modify the impressions produced by incoming sensory impulses in such a way that the final sensation of position rises into consciousness charged with the relation to something that has happened before."

WIDE SPECTRUM OF SENSATIONS

Into this scheme, Dr. Schilder places a wide spectrum of sensations, all of which aid in the final structure of our body image, and all of which inter-relate with each other to eventually tell us what we are, who we are, where we are, etc. A brief perusal of some of the sensations in the spectrum is enlightening: "Postural and tactile impressions, skin localization, optic impressions, right and left sighted, expressive and reflectory movements, muscle tone, posture, openings of the body, vestibular influence, pain, narcissism and love of one's body, erogenic zones, pain and libido, changing the body image by clothing."

Such an attempt at answering our questions can be found in the work of such men as Claude Bernard, Walter Cannon, Freud, Selye and others. Each of their theories, concepts, and experimental work further led to our current concepts of homeostasis, adaptation and the belief that our thought processes also impinge on our homeostatic system. The simple discovery that a basic tenet of living organisms is the need to maintain equilibrium. The simple discovery that living organisms thrive within a narrow range, and beyond these margins maintenance of health and life may be impeded. The simple equation of equilibrium that propel us throughout life: pain⇌pleasure; discomfort⇌comfort; tumescence⇌detumescence; increased ph⇌decreased ph; increased body temperature⇌decreased body temperature. The further discovery that this homeostatic principle and system operates at all levels of organization in the organism: cellular, organ, chemical, electrical; and at all levels of function in the organism: biologic and psychologic. In brief the discovery of our biologic and psychological economy system that insures and maximizes maintenance of homeostatis. "With our increased understanding of the adaptive capacity of the human organism to meet stress and maintain homeostasis, we are now less likely to consider it important to define symptoms as primary or secondary (physical or psychological). We view symptoms as signs of disturbance in the biologic and psychological economy of the organism. We view symptoms as part of the total body in action in the process of adapting, compensating, or decompensating to stress.[3]

Such an attempt at answering our questions can be found in the more recent interest in, and knowledge of, early childhood and infant development. The contributors are many, the work yet unfinished. Such contributors as Rene Spitz, Phyllis Greenacre, Sybill Escalona, Anna Freud, Piaget, Sontag, Hartman have all made inroads into this vast unknown. The interests and knowledge developed in the field have been many, but among these interests and knowledge has been the insight into the complex development of the psychological economy system of the child. We have come to seek answers to this development not in the child alone but in the unit of the mother-child. The intrauterine development of the fetus provides an interesting analogy by which one may visualize the factors that enter into the child's psychological economy. In this model, the fetus and mother form a biologic symbiotic unit, in which each member is both dependent on and independent of the other. Each member both gives to and takes from the other, and each is constantly compensating or adapting to changes in the other, so that at all times individual homeostasis can be maintained. The significance of this model, as an aid to understanding the future psychological economy of the child, is in its function. The function of this biologic symbiosis is two fold: (a) to protect the immature fetus from stress that it is not yet ready to cope with, while at the same time allowing for development in the fetus of means to cope with stress; (b) to protect the mother from excessive depletion of her own system, in order to allow continued sustenance of the fetus. It is our belief that this basically is the anlage in function for the future psychological symbiosis of mother-infant, mother-child.[3]

DIFFERENCES IN DEVELOPMENT

We have come to further understand the differences in the development of the biological economy system from the psychological. At birth the infant is biologically equipped to adapt to disturbed homeostasis, produced by stimuli relating to vital life processes such as breathing, elimination and electrolyte balance. However, the infant is not yet equipped to cope with disturbed homeostasis produced by stimuli, such as hunger, the many external stimuli that bombard the new born and infant and the stimuli stemming from the infant's internal and external sensory apparatus. All of these stimuli, when beyond the tolerance of the infant, produce disturbed homeostasis, which is manifested through signs of tension, such as restlessness, mottling of the skin, respiratory rate changes,

changes in muscle tonus, and vocalization through crying. These signs of tension then are signals of distress by which the infant indicates the need of help and suffering. The capacity of the mother or mother surrogate to perceive the signals of distress and offer the child comforting is the other part of the psychological symbiotic model. This interaction of a mother and infant, this mutual adaptation process, enables the infant to develop capacity to tolerate tension proportionate to his total body economy. In this way the infant is able to advance developmentally. He progresses from almost continuous twilight sleep to a more defined sleeping and waking stage; his orbit of activity increases, his environment takes on meaning; his actions are not total body actions or literal reflex actions but become more specific; developmental steps are achieved continuing through motor development, sensory development, social development. As these developmental steps are achieved the infant in turn becomes a comfort and reward to the mother thereby further buffering her, thereby further confirming for her her adequacy as a mother for her baby and so the mutual adaptation process continues. In this way, through mutual adaptation, maturation then becomes a process whereby the child becomes more tolerant of stimuli and is aided in developing capacity to cope with these stimuli and tensions. Pain and its perception become part and parcel of the normal growth process, and in reality are necessary for the differentiation of the self from the world outside the self.

In situations where mutual adaptation is not achieved the infant is not helped in developing capacities to tolerate tensions. The unrelieved tension becomes a threat to the total economy of the body. The infant needs to adapt to this threat and to restore homeostasis; this is accomplished by discharge of the tensions through already developed maturation means. The retreat by the infant into longer periods of sleep so as to lessen the pain of the unrelieved tension is a means of discharge; motor activity of the total body, continued beyond the developed capacity to manage, psychological economy maintains balance through the development of defense or protective maneuvers. In these situations pain and its perception, frustration and tension producing experiences, become sensations to avoid rather than to master.

In conclusion it would seem that the significance of these partial answers lies not really in how much our questions have been answered, but in the confirmation of the need to view our patients in their totality. The mouth is more than a receptacle for our teeth, it is an opening of the body through which our first approach to life is made: the tooth ache may reflect pathology in the tooth, but the reaction of the patient may be an index to personality disturbance; the significance of the exaggerated response of our Joeys and Martins lies not in the degree of their abnormality, but in the index and signs of disturbed psychological homeostasis and disturbed parent child relationship. The significance of these partial answers lies in the value of approaching our patients in pain with the need to understand that pain, its perception and reactions to it is compounded of stimulus, sensory endings, sensations, mediating fibers, chemical reactions, perception, meaning of this sensation in light of previous experience with painful stimuli and experiences; the nature of the emotional relationship of the patient to significant figures in the past or present; the image of their body as they would like to see it and as it is. In this way we more realistically approach pain as it is: it is involved in the total growth and life of the human organism and therefore it is one of the many sensations that enter into the development of the human as a thinking, feeling and acting organism.

THE COMPLICATED NATURE OF OUR ROLE AS PHYSICIANS AND DENTISTS

It would seem that for too long we have paid little attention to the impact of our patients' on the image of ourselves and vice versa. We have approached pain in our patients as if our own reaction as physicians and dentists are pure unencumbered feelings of helpfulness.

The truth of the complicated nature of our roles as helpers and healers is self evident when we find ourselves satisfied with the lack

of reaction in a child to a painful experience, when we would ordinarily expect one; when we find ourselves dissatisfied by the over-reaction of the child to a painful experience, and in turn feel resentful at the parent for not doing something about the situation.

The truth of the complicated nature of our role is self evident when we have reached the end point of dependency and demands of others on us, and thereby rationalize a temporizing procedure or method as a course of action in order to allow us time to recoup our own needs; or when in such a state of emotional emptiness ourselves, we attempt to comfort our patients in pain with idle reassurance.

The truth of the complicated nature of our own role is self evident when we are let in on the depth and pain of raw feelings in the patient or the family, and then find ourselves attempting to deny that these feelings of hate, anger, murderous impulse can exist in the human. Our denials can take many forms: attempts to change the subject; attempts at idle reassurance; attempts at implicating the weather, time of day, as the reason for such feelings on the part of the patient.

In brief then, our image of ourselves (as with our patients) comes not solely from our professional development, but is intertwined and intermixed with our personal development. Our own experiences with pain, painful situations, reality, social and emotional deprivations, inter-personal relationships, may have as much bearing on our own image as helpers and relievers as does our professional education. We see ourselves as we wish to at times: Godlike, omnipotent, all giving and all forgiving, completely understanding and comforting—objective; we occasionally see ourselves as we are: insecure, bothered, displeased, angry at what is asked of us, subjective. It would seem that our more recent advances in medical education apart from our great scientific discoveries, is in the area of aiding our potential physician discover the art of medicine, the art of human relations, and the art of recognizing one's self as human and not Godlike.

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DOLOR E SU SIGNIFICATION EMOTIONAL

per Dr. med. Meyer Sonis

SUMMARIO IN INTERLINGUA

Le imagine que nos ha de nos mesmes (como illo que nostre patientes ha de se) non es derivate exclusivemente ab nostre disveloppamento professional sed es intertexite e intermiscite con nostre disveloppamento personal. Nostre experientia personal de dolor, de situationes dolorose, del realitate, de privationes social e emotional, e de relationes interpersonal es possibilemente tanto importante como factor in le formation del imagine que nos ha de nos como adjutatores e alleviatores como nostre educational professional. Nos visualisa nos a omne tempore como nos desira nos: simile al deos, omnipotente, omnidonante, omniperdonante, completemente comprehendente e confortante, e semper obejctive. A certe occasiones nos vide nos etiam como de facto nos es: insecur, inquiete, displacite, enoiate per lo que on expecta ab nos, e multo subjective. Il pare justificate asserer que le recente progressos in le education medical, a parte le vaste discopertas scientific, concerne le area del desiderato que le medico futur es guidate a discoperir le arte del medicina, le arte del relaciones human, e le arte de recognoscer se mesme como human e non simile al deos.

A FLAP TECHNIQUE FOR CURETTAGE OF A DEEP PERIODONTAL POCKET

LOUIS R. BURMAN, D.D.S., F.A.D.M., F.A.C.D.*

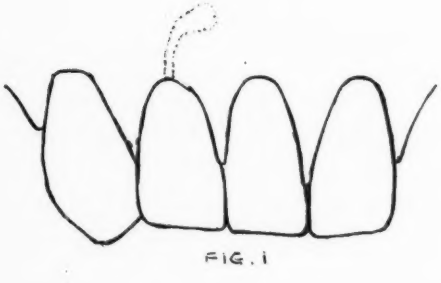
Accessibility and visibility for deep curettage of a periodontal pocket or for treatment of a periodontal abscess is sometimes difficult to achieve by insertion of an instrument through the gingivo-marginal opening of the involved area.

When periodontal pockets are deep or tortuous, or when the instrument is too big for the opening, smoothing of the root surface of a tooth and debridement of the soft tissue side of the pocket cannot be done as effectively as if the area of operation was open for inspection and manipulation.

In areas of deep isolated pockets, increased efficiency of curettage may be obtained with a semi-lunar flap. The incision should curve apically and should begin and end beyond the area of involvement, and the height of the incision should be beyond the lesion, so that the entire periphery of the flap is on good healthy bone.

The advantages to be gained from this type of flap are:

1. Adequate exposure of the involved area.
2. Accessibility to all types of instruments.
3. Tooth surface can be smoothed visibly.
4. Soft tissue may be curetted adequately.
5. Good blood supply is maintained to the gingivae.
6. Shrinkage of the undermined gingival margin will be reduced to a minimum upon healing.
7. There will be no recession due to incisions of the marginal gingivae.



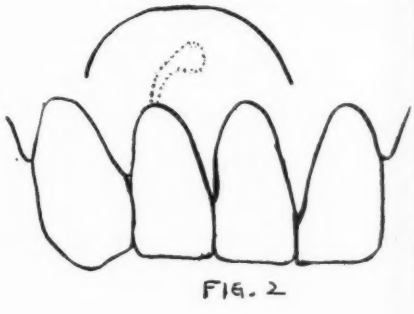


Figure 1. Area of periodontal involvement (pocket or abscess).

Figure 2. Line of incision on good bony substructure.

* Visiting, Attending in Periodontia and Oral Medicine, Morrisania City and Grand Central Hospitals, N. Y. C.

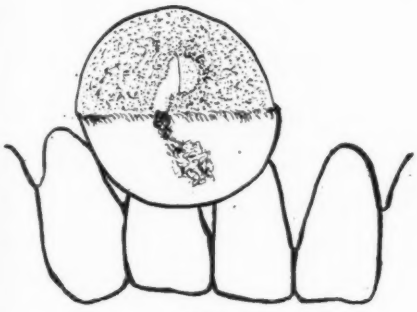


FIG. 3

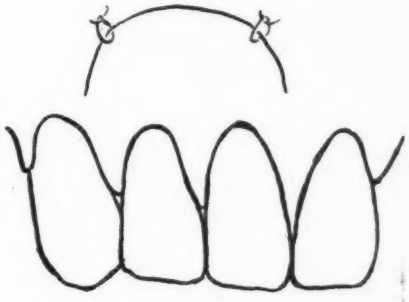


FIG. 4

Figure 3. Flap retracted showing bone destruction along root surface and granulation tissue inside the flap.

Figure 4. Flap replaced and sutured in position.

Two sutures may be made when replacing the flap. The sutures are tied off at the line of incision. Healing is usually uncomplicated.

57 West 57 Street,
New York 19, N. Y.

THE AMERICAN ACAD OF D

14TH ANN VENTIO

May 27, 28, 29 and 30, 1960 arwick

Program

"THE SEVEN AGES OF MAN"

Friday, May 27th

2:00 P.M. Board of Trustees Meeting

8:00 P.M. Hospitality Party

Saturday, May 28th

9:00 A.M. Registration—all day

9:30 A.M. Greetings

10:00 A.M. CHARLES E. WILDE, JR., Ph.D.
Embryology and Development

12:30 P.M. Luncheon

2:00 P.M. CHARLES KENNEDY, M.D. and MANUEL M. ALBUM, D.D.S.
Informal panel on Problems of Abnormal and Handicapped Children and their Management.

6:30 P.M. President's Reception

7:30 P.M. Award Dinner Dance

Sunday, May 29th

10:00 A.M. Business Meeting

12:00 Noon Luncheon
Miller Memorial Award

2:00 P.M. WILTON M. KROGMAN, Ph.D.
Growth and Development of the Adolescent

3:00 P.M. JAMES W. SKELTON, Ph.D.
What is "Modern" Man?

6:00 P.M. Reception—Your Hosts:
Philadelphia Section, A.A.D.M.

7:00 P.M. Dinner and Entertainment

Monday, May 30th
(Memorial Day)

10:00 A.M. Joseph T. FREEMAN, M.D.
Problems of Age—Medical
S. L. ROSENTHAL, D.D.S.
Problems of Age—Dental

11:15 A.M. EDWARD LODHOLZ, M.D.
Death

12:30 P.M. Award Luncheon

2:30 P.M. Board of Trustees Meeting

OUR ESSAYISTS:

DR. CHARLES E. WILDE: Prof. and Chairm Dept. of Oral Histology and Embryology; Sch of Dentistry, University of Pennsylvania.

DR. CHARLES KENNEDY: Head of Research Neurology, Children's Hospital, Philadelph

DR. MANUEL M. ALBUM: Past Pres. Acade of Oral Rehabilitation of Handicapped P sons; Chief, Dental Service, Society for C pled Children and Adults; Asso. Dentist, C dren's Hospital and Abington Hospital.

DR. WILTON M. KROGMAN: Prof. of Physi Anthropology and Director, Phila. Center f Research in Child Growth, University of Pen sylvania.

DR. JAMES W. SKELTON: formerly Head, P losophy and History of Education, Gradua School, Temple University. Author and Lectur

DR. S. LEONARD ROSENTHAL: Past Presid American Academy of Dental Medicine; Pro Dept. of Oral Diagnosis, Dental School of Te ple University.

DR. JOSEPH T. FREEMAN: Clinical Assista Prof. of Medicine; Special Lecturer in Geriatri Women's Medical College of Pennsylvania.

DR. EDWARD LODHOLZ: Emeritus Prof. Physiology, Graduate School of Medicine, U versity of Pennsylvania.

ACAD OF DENTAL MEDICINE

H ANN VENTION

1960 arwick Hotel, Philadelphia, Pa.

Ladies' Program

Friday Evening

Hospitality Party

Saturday Morning

Free for shopping

Saturday Afternoon

ll be on hand to escort you
he Art Museum, Planetarium, or to the Zoo.
a cooling swim; if you'll let us know
ll take you wherever you'd like to go.

Saturday Evening

Cocktail Party, Dinner and Dance.

Sunday 9:30 A.M.

elaxing cruise down the Delaware
abulous Longwood Gardens, where
duPonts have fashioned a treat for the eye,
passing the beauty of Versailles.

Sunday Evening

ktails; buffet dinner; and George Britton, one of our outstanding entertainers.

Monday Morning

A tour to the birthplace of our nation;
To the Liberty Bell, Christ Church,
And Betsy Ross' creation.

HOSTESSES

MRS. JACK ALLOY
MRS. MARTIN ENTINE
MRS. S. LEONARD ROSENTHAL
MRS. JACOBY T. ROTHNER
MRS. BERNARD B. SATUREN
MRS. P. GEORGE SAVITZ
MRS. GEORGE G. STEWART

14th Annual Meeting
1960 Convention Committee

Dr. Jacoby T. Rothner, Dr. Bernard B. Saturen ..... *General Chairmen*
Dr. Jack Alloy ..... *Hospitality*
Dr. Morris Bradin ..... *Registration*
Dr. Herbert Brilliant ..... *Printing*
Dr. Martin Entine ..... *Publicity*
Dr. Saul Kaplan ..... *Scientific Equipment*
Dr. Emanuel H. Malamed ..... *Social Arrangements*
Dr. Seymour Pollack ..... *Local Arrangements*
Dr. P. George Savitz ..... *Liaison*
Dr. George F. Clarke ..... *National Advisor*

Sunday, May 29, 1960

Noon, Luncheon

The
Dr. Samuel Charles Miller Memorial Award
will be presented to

DR. HANS SELYE

Scientist, Research Worker, Teacher

UNIVERSITY OF MONTREAL, MONTREAL CANADA

In recognition of his significant contributions to the Art and Science of Dental Medicine.

An original paper will be presented by Dr. Selye on the subject: "The Induction of Calcification by Mechanical Stress Applied Locally Through Implants of Glass or Plastic Objects."

VACCINOTHERAPY OF CHRONIC HERPES SIMPLEX

S. LEONARD ROSENTHAL, D.D.S., F.A.C.D., F.A.D.M., F.A.A.A.S *

Infection by the herpes simplex virus is common. Usually more uncomfortable than dangerous, it occasionally has been associated with meningitis, encephalitis, Kaposi's varicelliform eruption and lymphangitis.[1]

The virus can be demonstrated in the saliva for some weeks after the onset of the infection.[2] It can be grown best on the chorioallantoic membrane of the chick embryo. Cytologic examination of scrapings from the base of a vesicle also has been suggested as a diagnostic method.[3] A simpler diagnostic procedure is inoculation of the scarified cornea of a rabbit with the contents of an herpetic vesicle.[4]

Microscopic examination of a vesicle discloses that it is intraepithelial and characterized by "ballooning" degeneration, swollen epithelial cells with multiple nuclei and occasional eosinophilic intranuclear inclusion bodies. The corium shows polymorphonuclear infiltration with a few lymphocytes and monocytes.[5] After rupture, the surface is covered by an exudate of fibrin, polymorphonculear leukocytes and degenerated cells.[6] However, diagnosis usually can be determined from the history and clinical appearance.

Infection results in the formation of demonstrable antibodies in the blood stream; but since the dormant virus is intracellular, complete immunization is not obtained. The antibodies merely reduce the severity of a recurrence. There is general agreement that herpes simplex is transmissible, but whether by droplet or by contact has not been determined.

Variation of the clinical course and consequent treatment make it convenient to divide this entity into primary, recurrent and chronic types.

* Professor of Oral Diagnosis, Temple University School of Dentistry.

PRIMARY HERPES

This is also known as herpetic gingivostomatitis, ulcerous stomatitis or aphthous stomatitis.

Although there is some evidence of antibodies in the newborn from the placental circulation[7], they are not sufficient to prevent a severe generalized reaction to the initial infection. Infants usually cry, drool and refuse food. Older children may be lethargic or quarrelsome, lose interest in play, and complain of pain in the head, neck or when swallowing. Pyrexia (99° - 105°F) is accompanied by regional adenopathy. The gingivae become red, swollen, tender and bleed easily. (Fig. 1).

In 1-2 days, vesicles begin to form. As the typical lesions (which are similar to the recurrent type) appear, the general symptoms subside. The ulcers heal without scar in 7-10 days. The usual stormy course may be mitigated and secondary infection prevented by tetracycline antibiotics in appropriate dosage together with an anesthetic ointment.

Primary herpes should be differentiated from periadentitis mucosa necrotica, herpangina and other viral infections.

Fig. 1. Primary herpes simplex. Age 11. Temperature 102°. Second day. Vesiculation began the following day.

Fig. 2. Recurrent herpes simplex. Vesicular stage.

Fig. 3. Recurrent herpes simplex. Ulcers of the tongue and skin surrounded by a red areola.

RECURRENT HERPES

Also known as aphtha, canker sore, fever blister or stomach ulcer, this is seen in older persons who have some immunity from previous infection. The virus is residual and is activated by trauma e.g. stretching the tissues during dental treatment, or by lessened resistance following infections, hormonal changes, gastro-intestinal disturbances or other debilitating processes.

With few exceptions, there are no general symptoms. Premonitory sings of burning or itching are followed in a few hours by the appearance of vesicles filled with a clear yellowish fluid on an erythematous base. The lesions may be single or multiple and vary in size from pin head to a centimeter. (Fig. 2). Several vesicles may coalesce to form a linear lesion. The vesicles soon rupture leaving an eroded area covered with a cheesy white material and surrounded by a bright red areola. (Fig. 3). Touch or movement evokes a burning pain accompanied by some salivation. On the skin or vermillion border of the lip, a brown crust covers the ruptured vesicles. (Fig. 4). The most common sites are the frena of the lips and tongue, the mucosa of the lips and cheek, the mucocutaneous border of the lips, the oral commissures, the tongue; and less frequently, the uvula, the gingivae, and the skin of the lips and face. The ulcers heal without scar in 3-7 days without treatment, but may recur. Recovery can be hastened and the patient made comfortable by cauterizing single lesions with 95% phenol or by covering multiple lesions with an anesthetic ointment.

CHRONIC HERPES

The premonitory symptoms, location and appearance of the lesions are identical to the recurrent type. The difference is in the persistency and frequency of recurrence. Some patients are rarely without one or more lesions since a new crop forms before its predecessors disappear. Others have varied intervals of comfort between recurrences. Occasionally it precedes the menstrual period of females. Chronic herpes should be differentiated from pemphigus, Behcet's syndrome and allergy.

Some investigators believe that this is not herpetic but "aphthous".[8] Whether or not this chronic annoyance is a true herpes seems of

Fig. 4. Herpes Labialis. Vesicles and crusting.

minor import. The symptoms, clinical and microscopic appearance are similar. Although not always successful, the most effective treatment seems to be serial vaccination with smallpox vaccine as suggested by Woodburne.[9]

In order to observe the efficacy of this therapy, 149 persons with chronic herpes were treated by vaccination. They were private patients, clinic patients and students in the schools of Dentistry and Oral Hygiene at Temple University. It was possible to observe 100 for a period of 2 or more years. Table 1. Of these 34 were males and 66 females. The youngest was 16 years old; the oldest 53; 13 were less than 20 years of age; 42 were 20-29; 32 were 30-39; 12 were 40-49; 1 was over 50. The median age was 28.

The duration of the complaint is questionable since the investigator must rely upon the patients' memory. Using the statements of each 94 patients had been troubled for an average of 3.3 years. Five could not remember when they had been free from discomfort, believing it was present since childhood; and 1 was unable to estimate. The frequency of the ulcerations varied. Twenty were never entirely free as new vesicles formed before the previous ulcerations healed. Only 4% were associated with the menstrual cycle. The majority stated that lesions appeared approximately every 2 weeks. The frequency of occurrence is dependent upon the accuracy of the patient also and it was problematic whether there was real periodicity.

The number of lesions varied. A few had single lesions at the time of examination; most had more. The most severe, case 7, had lesions on the uvula, anterior pillars of the fauces, tongue, frena, lips and mucobuccal folds. He had lost 40 pounds due to difficulty in eating.

Each patient was vaccinated by the usual technic with commercial smallpox (cowpox) vaccine once a week on the right and left upper arm alternately. Previous trials indicated that 10 vaccinations gave surest results. Therefore this was the number planned. However, 27 received only 7-9 for varied reasons. Of these, 4 (14.8%) had recurrence which was controlled by additional vaccinations. Of those receiving the entire series, 8 (10.9%) required additional treatment for successful relief.

Eighty-eight were considered successful since there was no recurrence for 2-12 years. Included are 5 who had one or two ulcers within a year of treatment, but remained free from ulceration for the remaining time of observation. Included also are the 12 who had recurrence of chronicity which resolved after additional vaccinations. The elapsed time in the last column of Table 1 is calculated from the date of the last treatment.

Those associated with menstrual cycle were given hormonal therapy by the family physician. Case 76 had no relief from the vaccine alone. Six months later, she received hormonal support without change except for a greater regularity of the menses. A new series of vaccinations then gave relief for the following 2 years. Case 29 was marked by numerous painful lesions. Following hormonal and vaccine therapy, discomfort was relieved. Two days before the menses, the patient now notices several small painless swellings which disappear without vesiculation or ulceration when the menstrual flow begins.

Case 79 accompanied an untreated diabetes mellitus. There was no relief until insulin controlled the hyperglycemia.

Most of the failures had temporary relief for a few months. Recurrence was not prevented by additional treatment. Four had no effect; one was worse; and one had an allergic reaction to the vaccine.

It was noted that a primary reaction to the vaccine was an invariable indicator of success. An immune reaction could be a forerunner of success or failure.

DISCUSSION

There has been much skepticism of the possibility of immunizing against the herpes virus (or the unknown virus of the aphthous theory) by smallpox vaccine, since it was believed that a unique antibody must be formed for each specific antigen despite the infinite number of reactive substances and the paucity of antibody-forming cells.[10]

	Sex	Age	Duration in years	Frequency in weeks	Number of vaccinations	Additional treatment	Relief in years	
1	M	42	Lifetime	Constant	10		3	
2	M	19	2	3	7		2	1 ulcer after 6 mo. no further treatment
3	F	31	3	2	8		2	
4	F	28	5	Menses	8	Hormonal	5	
5	F	26	1	2-6	7		3	
6	F	22	5	Frequent	5	7 (1 yr. later)	2	
7	M	40	3	Constant	10		10	Mouth & throat
8	F	24	4	Frequent	10		12	
9	M	36	5	Frequent	9		3	
10	F	32	6	Frequent	9	9 (6 mo. later)	2½	Wife of #9
11	M	25	4	Frequent	10		5	
12	F	36	2	2	10		2	
13	F	29	3	10 days	8		2	
14	M	33	6 months	Constant	10		3	
15	M	19	1	Constant	10		2	
16	F	39	10	3	10		7	
17	F	43	3	10 days	10		4	
18	F	35	Lifetime	Constant	10	8 (2 yrs. later)	10	
19	M	24	2	3	10		2	
20	M	20	6 months	Constant	10		3	
21	F	53	1	2	10	Hormonal	2	Menopause
22	F	35	2	Constant	10		2	
23	F	23	5	2	10		2	
24	M	30	3	Irregular	9		4	
25	F	42	10	Constant	10		9	
26	M	23	5	4	10		6	
27	F	21	4	1	10		2	
28	F	31	3	Constant	10		3	2 ulcers after 1 yr. No treatment
29	F	47	6	Menses	10	Hormonal	3	Painless swellings monthly. No treatment
30	F	18	1	Constant	10		8	
31	F	35	2	2	10		0	
32	M	41	6	3	10	10 (6 mo. no later)	0	
33	F	30	2	1	10		3	
34	F	19	3	1-2	10	6 (2 yrs. later)	4	
35	M	43	3	3	4		0	Worse
36	M	20	1	Constant	4		0	Reaction
37	F	29	Lifetime	Constant	10		2	
38	F	30	2	Irregular	10		2	1 ulcer. No treatment
39	F	27	5	2	10		3	
40	F	17	3	2	10		2	
41	F	31	?	2	8		2	
42	M	38	8	3	10		2	2 ulcers. No treatment
43	M	32	4	6	8		2	
44	M	35	Lifetime	Constant	10	8 (2 yrs. later)	5	
45	F	31	2	Irregular	10	Phenobarbital	2	
46	F	16	3 months	Constant	10		2	
47	F	40	2	1	10		2	
48	F	23	4	2	10		3	
49	F	26	5	3	10	8 (3 mo. later)	0	

	Sex	Age	Duration in years	Frequency in weeks	Number of vaccinations	Additional treatment	Relief in years	
50	M	17	1	2	10		2	
51	F	25	2	2	9		2	1 ulcer. No treatment
52	F	25	1	3	10		2	
53	M	22	2	6	10		2	
54	F	27	3	4	10		2	
55	M	22	2	2	8		2	
56	F	22	2	10 days	10		8	
57	F	23	4	2	10		2	
58	F	35	1	1	10		3	
59	M	22	2	1	9		6	
60	F	36	10	6	10		0	
61	M	34	1	Constant	10		3	
62	F	33	2	1	9		2	
63	F	25	4	Constant	10	5 (1 yr. later)	2	
64	F	25	3	Irregular	10		6	
65	M	34	5	3	10		2	
66	M	26	3	3	10		2	
67	F	20	2	5	8		2	
68	F	36	8	2	10		2	
69	F	35	6 months	Constant	10		2	
70	F	29	2	3	9		2	
71	F	19	1	2	9		2	
72	F	30	3	3	10		2	
73	F	32	6	Irregular	10		4	
74	F	26	2	2	8	10 (2 mo. later)	0	
75	M	24	2	Irregular	10		2	
76	F	21	3	Menses	10	Hormone & 10	2	
77	F	30	8	1	10		6	
78	M	19	3	2	10		2	
79	M	22	1	Constant	10	Insulin	4	
80	F	31	2	3	10		2	
81	F	34	6 months	Constant	10		2	
82	F	18	2	Irregular	10	10 (6 mo. later)	0	
83	F	18	2	1	8		2	
84	F	43	5	Irregular	9		2	
85	F	22	2	2	9		2	
86	M	29	4	2	9		3	
87	M	17	2	2	10		2	
88	M	43	5	?	9		2	
89	F	28	2	?	9		2	
90	F	22	2	1	10		3	
91	F	41	6	Irregular	10		2	
92	F	30	6 months	Constant	10		3	
93	F	25	1	1	10		0	
94	M	25	3	1-2	8		2	
95	F	19	2	?	10		0	
96	M	37	2	2	4	10 (3 mo. later)	3	
97	M	41	Lifetime	1	10		0	
98	M	24	3	2	10		2	
99	F	27	2	3	10		0	
100	F	26	2	2	10		3	

Talmadge[11] has called attention to the well known phenomenon of cross reaction and has postulated that antisera contain antibodies in different combinations. Thus "a single globulin molecule may combine with different substances" . . . just as "a master key may open a large number of different locks."

This hypothesis would explain the successful cases but not the failures.

SUMMARY

Herpes simplex may be divided into primary, recurrent and chronic forms. Of 100 persons with chronic herpes, 66% were females and 74% were between the ages of 20 and 39. The median age was 28.

Few were related to the menstrual cycle.

Although the duration had ranged from 6 months to 40 years, serial vaccination with smallpox vaccine gave relief for 2-12 years in 88% of 100 cases.

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VACCINOTHERAPIA DE CHRONIC HERPETE SIMPLICE

Dr. chir. dent. S. Leonard Rosenthal (F.A.C.D., F.A.D.M., F.A.A.A.S.)

SUMMARIO IN INTERLINGUA

Infectiones per virus de herpete simplice es commun. Usualmente illos es plus disconfortabile que periculose, sed illos occurre sporadicamente in association con meningitis, encephalitis, eruption varicelliforme de Kaposi, e lymphangitis.

Herpete simplice pote esser dividite in le formas primari, recurrente, e chronic. Inter 100 subjectos con herpete chronic, 66 esseva femininas e 74 esseva de etates de inter 20 e 39 annos. Le valor central del etates esseva 28 annos. Interrelation con le cyclo menstrual esseva pauco frequente.

Ben que le durationes habeva variate inter 6 menses e 40 annos, vaccination serial con vaccino de variola alleviava le condition pro inter 2 e 12 annos in 88 de 100 casos.

PSYCHOSOMATICS AT THE DENTAL CHAIR†

JOSEPH S. LANDA, D.D.S.*

The psychosomatic concept of disease has become one of the leading topics of discussion and conferences. Both physicians and dentists are devoting increasing attention and interest to the scientific formulation and practice of the health principle enunciated by the ancient Romans in their dictum: "Mens sana in corpore sano"—a healthy soul in a healthy body. It is the author's[1] belief that this dictum is really the forerunner of the concept of psychosomatics. The latter combines two words: psyche and soma, or mind and body. The compound, psychosomatic, then implies an integration of the mind and body into an indivisible whole. Thus there can be no physical disease of which the patient is aware without some effect on his emotional life; and, on the other hand, no disease of the mind without direct or indirect repercussions upon the functions and activities of the body.

A question arises at this point. Is the psychosomatic approach in medicine and dentistry an entirely new concept? The answer is definitively in the negative, for both physicians and dentists have long been mindful of the existence of some interrelationship between physical illness and emotional experience. The fact is, however, that this concept is still, even today, too generally honored in theory rather than in practice. The medical profession's interest and enthusiasm have been so captivated by a multitude of new epoch making inventions and discoveries in the fields of histology, pathology, bacteriology and biochemistry that the emotional life of the patient may be said to receive inadequate attention. The overenthusiasm of the medical profession's thinking of disease in terms of the soma only dates back according to Alvarez[2] probably about two centuries when, at necropsy tables, physicians began to observe the ravages that many diseases work throughout the body. Then, with the invention of the microscope, they began to observe the microscopic changes in the tissues that were accounting for either the cause or the result of disease. With the acquisition of more knowledge in chemistry they learned about the chemical changes that cause diseases such as gout, diabetes. This was followed by discoveries in the field of endocrinology, learning about hormones and chemical substances that mediate the actions of the autonomic nerves. Surgery then came to the forefront with its spectacular achievements that Osler called "the discovery of the pathology of the living". All these discoveries focused the undivided attention of the medical profession on organic disease and away from emotional illness. Presently, however, it is generally agreed that there are many diseases, disabilities and disorders for which no demonstrable gross microscopic or chemical cause can be set forth to explain the mechanism of the above mentioned disorders. This strongly suggested that the old unilateral organic approach to diagnosis of disease is inadequate; and that every organic disease has a psychic component and every psychic disorder sooner or later manifests an organic disturbance. So much so that every troubled patient is afflicted with a combination of psychosomatic and somatopsychic symptoms which, when combined and superimposed upon one another, form syndromes. We must always be mindful of the fact that the troubled mind of the patient is as real as is his bruised body and both require our most *undivided and sympathetic attention.*

* Fulbright Professor, Tokyo Medical and Dental University, Tokyo, Japan; formerly Professor of Denture Prosthesis (Postgraduate), New York University College of Dentistry.

† Presented before the Eastern Dental Society of Philadelphia, October 15, 1959.

PSYCHOSOMATIC AND SOMATOPSYCHIC DISORDERS

No disease can exist as either entirely psychic or entirely organic but must in the final analysis contain elements of both, of course, in various proportions. If the psychic etiologic component predominates, the disease may be called psychosomatic as distinguished from the so called somatopsychic disease when the somatic or organic etiologic component predominates. The link between the psyche and soma in psychosomatic disorders can be best observed by a study of the visceral systems, digestive, glandular, etc. as they reflect the emotional status of the subjects involved. Just as chemical mediation of nerve impulses can now be considered as a typical example of an organic or physical mediator so the autonomic system can be considered as the emotional mediator between the mind and body in psychosomatic disturbances. As long as an individual is at peace with himself and the world the parasympathetic components of the autonomic nervous system keep the body in a state of homeostasis. Just as soon as the emotional status of an individual is severely disturbed by being suddenly confronted with a dangerous situation a corresponding state of stress sets in and the scene is from there on dominated by the sympathetic components of the autonomic system. The dangerous situation in question may be real or psychologically induced but the resulting stress will be more or less the same. When examining a patient with a view of establishing the degree of his emotional involvement for classification purposes it is essential to remember that such a classification can never be considered as precise but may serve as a practical guide. While presently a physical medical examination is more precise than a mental examination the two bear comparison, according to Strecker.

The comparison may be made between their respective pressures and driving forces: For the circulation or the stream of blood—the heart, for the stream of thought—the emotions. It is in this way by following the stream of thought of the patient at the initial interviews that we can hope to arrive at an approximate diagnosis. The latter will serve as a guide for the physician or dentist for choosing the most appropriate mode of behavior with the particular patient under treatment. Let us not lose sight of the fact that the doctor-patient rapport must be based on mutual understanding, mutual respect and perfect reciprocity.

THE EDENTULOUS PATIENT

I do not know any branch of medicine or dentistry in which the psychosomatic approach is as invaluable as it is in the field of full denture prosthesis. The state of mind and cooperation of the patient play a most dominant role in adjustment to artificial dentures. We must, therefore, accept as basic the concept that unsatisfactory dentist-patient relations tend to undermine the patient's satisfaction with the dentures. The patient views the dentures as pars pro toto of the dentist and extends his dislike to them. To eliminate such a possibility it is well to remember that even in the relationship between the shopkeeper and customer the "customer is always right." In the doctor-patient relationship, since the "commodity" is the "Customer's" health, there are compelling humanitarian reasons for extending to the patient the utmost consideration.

The edentulous patient comes to us minus an important organ. This organ is physically and emotionally closest to the psyche. The patient is now unable to masticate his food; he is unable to speak properly and his facial contour is disfigured. Esthetics and phonetics are poignantly psychological problems. Dining with others is, for the edentulous patient, a situation easily frought with embarrassing possibilities. Mechanics, esthetics and phonetics form the very foundation of successful denture prosthesis. However, one of these components may constitute the real "trigger zone" in one patient, while another phase forms the vulnerable point of the next patient. Theoretically, all three features must be incorporated into the denture to a point of perfection. In practice, however, we are usually compelled to give primary attention to one of these factors. The inescapable com-

promise must always take cognizance of the best interest of the patient's total personality. We dentists, must direct the full force of our knowledge and ability toward the major causal factors of failure in denture prosthesis. But we must study and study hard all the psychological contributing factors to failure if we are to render a health service worthy of the fine traditions and ideals of dentistry.

The following according to the author[3] are a few of the important contributing factors to elusive failures in denture prosthesis:

1—A patient who has been subjected to multiple extractions without adequately being informed about the limitations in function of full dentures will usually advance multiple complaints about the inadequacy of their dentures.

2—A patient who is "too young" to be a wearer of full dentures and was not told in advance of their shortcomings will be frustrated and disappointed with their function.

3—A patient who is "too old" (physiologically, not necessarily chronologically) and who has not been intelligently informed about some of the trials and tribulations one goes through before developing *tissue tolerance* for artificial dentures is bound to be disappointed.

4—A patient primarily concerned about the cosmetic effect of the dentures will be greatly frustrated by the artificial substitute unless it is a real accomplishment from an esthetic point of view. The dentist, in these instances, must have a definite understanding on the subject of esthetics before he can reach a satisfactory compromise between his own and the patient's point of view. The patient's and dentist's version of esthetic values may be as far apart from one another as the north pole is from the south pole.

5—Patients primarily concerned about the mechanical efficiency of artificial dentures in mastication and who so inform their dentist by emphasizing and overemphasizing this fact are seldom satisfied patients. Many people erroneously believe that after the removal of their aching natural teeth all that remains to be done to end their troubles is to replace them by a set of artificial dentures. They anticipate the same efficiency but less discomfort from the artificial dentures. But we know that such anticipations are never matched by corresponding realizations.

6—To some people phonetics is the most important feature in denture prosthesis. In most instances, a properly constructed set of dentures does afford the patient adequate comfort in phonetics after a certain period of adjustment. However, it must be borne in mind that in certain cases of Angle Class II and Class III or in instances of other anatomic oral abnormalities the conditions for phonetics may be so unfavorable that the patient should be tactfully but firmly informed about this factor.

7—The overwhelming majority of patients complain of pain in the denture supporting structures—particularly of the lower denture. These complaints are in most instances fully justifiable. Should we "psychosomatize" such patients by telling them that they are "nervous" or "lacking in vitamins" (a procedure too often resorted to) we would not be discharging our professional duty. The fact that no clear cut ulceration or vascularization is found by a superficial examination of the oral structures does not mean that the patient is imagining pain. Let us not fall into this dangerous trap —pain does not come from a vacuum. The greater our mastery and competence in physical diagnosis the less reasons we have to resort to psychosomatic alibi. When we reach the stage of alertness to a point of anticipating even the still unvoiced complaints of our patients we may consider it a distinct step forward in the direction of success in the field of denture prosthesis. But for that the patient must always be viewed as a total personality.

PSYCHOTHERAPY

Since immemorial times two extreme types of medicine have been practiced by different types of practitioners. One type of medical practitioners believed in witches and angry gods. They frequently reached the height of success in the "healing art" because they were

masters in putting on a good show with an abundance of ritual, garnished with expert showmanship. This made the patient believe that he will get better if he follows the advice of the mysterious "Doctor". This may be considered a certain kind of psychotherapy. The second group of medical practitioners consisted of physicians ministering health service in all branches of medicine. The vast majority of these health guardians were earnestly endeavoring to keep their patients in good health by surgical procedures, by prescribing drugs and by psychotherapeutic procedure. At this point it would not be amiss to define the word psychotherapy. The latter may be defined as the treatment of disease by mental influence or by suggestion to relieve anxiety or modify behavior. In turn the most outstanding feature of human behavior consists in the well established fact that though biologically elaborated it lends itself to cardinal modifications through nurture. So much so that we may state with positiveness that most approaches to influence behavior, most forms of psychological intervention and various methods of psychotherapy are based on this very foundation. Careful studies of doctor-patient rapport definitely indicate the deep and intimate tie that exists between the doctor and his patient. All the doctor has to do is to strengthen and intelligently utilize this relationship to be of great comfort to his patient. How can the dentist achieve this goal? Can he or should he step into the shoes of the psychiatrist by suggesting or offering to his patient psychologic treatment in lieu of a comfortable set of dentures. Certainly not.

A psychoanalyst works on a patient two to three years in an attempt to uncover the unconscious motivation for a conflict that is making the patient sick. Can we hope to achieve this in one or two initial interviews that require our almost undivided attention for a correct diagnosis of organic manifestations of disease in the oral cavity. Even in this area we too often build the whole plan of treatment on the basis of meagre, fragmentary information. Let us then be soberly realistic and arrive at an understanding that we, dentists, must at all times be psychosomatically minded if our patients are to get the health service they deserve. Let us broaden our knowledge in psychology by reading the works of outstanding leaders in this field and by going frequently to lectures and conferences on this subject. This will help us in establishing a better rapport with our patients which, when combined with our most important vocation—competence and mastery in practical technologic dentistry—will place dentistry in high esteem with the public. We are engaged in rendering a prosthetic service and some of the recipients of the service may happen to be emotionally disturbed. In such instances, we must resort in addition to the highest type of service in technologic dentistry, to some form of psychotherapy. The latter will neither be of the purely empirical type, in which treatments are administered that effect cures or improvements without our understanding why and how such results are achieved. Nor will it be the kind of psychotherapy that is based in its entirety on the Freudian[4] concept of psychoanalysis. The latter, in turn, is based on a consistent theory of the structure and function of the human personality and which represents a truly etiologically oriented psychotherapy. We, dentists, when dealing with patients that are afflicted with mild emotional disturbances should resort to the use of a form of psychotherapy that is neither as primitive as the purely empirical type or as utterly complex and complicated as psychoanalytic psychotherapy. We should avail ourselves of the form of psychotherapy that is based on elementary psychological principles and *good common sense*.

SUPPORTATIVE AND INSIGHT PSYCHOTHERAPY

It should be stated at this point that, according to Franz Alexander[5, 6], psychotherapy has never been a completely empirical procedure. Thus everyone who tries to console a despondent friend, or calm down a panicky child, in a sense practices psychotherapy. He tries by psychological means to restore the disturbed emotional equilibrium of another person. Even these common sense, everyday methods are based on the understanding of the nature of the

disturbance, although on an intuitive and not scientific understanding. Talking over with a person an acute harrassing experience is based on the instinctive knowledge of the curative effect of abreaction (the working off of something by living through it again). Freud's term for the elimination of a mental trauma or psychoneurosis by the process of reenacting it, and at the same time allowing free play to the emotions, and thus relieving the patient's mind of the mental effect which it produced; also called catharsis). Giving advice and assuming a firm attitude again is based on the instinctive knowledge that the panicky and confused individual needs emotional support which we can give him by allowing him to lean on us. We also know intuitively that a person who is overwhelmed by a threatening situation cannot use his reasoning faculties effectively and, therefore, we try to calm him down by giving him support. At the same time, by discussing with him the objective situation, we lend him our own reasoning faculties. Doing all this, we then practice a combination of supportive and insight psychotherapy. The latter is best suited for use by our profession at the present time. We should practice this kind of supportative and insight psychotherapy whenever and wherever it is indicated such as in mildly hysterical patients. In his careful study and analysis of hysterical patients Freud[7] has found that under certain conditions emotional conflicts are converted into bodily symptoms. Thus emotional tension of long duration that cannot find expression and conscious relief through normal channels will tend to find an unconscious outlet which may express itself in any bodily symptom. Thus, some of our denture patients who have been under emotional strain and tension for a long time may begin to complain of severe diffuse pain in the denture supporting structures when in reality no ulceration, irritation or vascularization of any kind can be detected. This represents the "organ language" which is the end product of the conversion of the emotional conflict. The fact that no visible physical symptoms can be detected on the denture supporting structures does not imply that the patient is imagining the pain and that we can take these complaints lightly or disregard them altogether. Such an attitude on our part would only augment the tension and with it the patient's physical suffering. Pain does not come from a vacuum and the patient does not deliberately talk it into himself. Since we feel that the pain of the mucosa which is real and not imaginary to the patient is a result of severe or unduly prolonged emotional tension, our first concern should be to relieve the patient's mind of the mental effect it produced. This emotional support we can make available to the patient by our kind and sympathetic understanding of the trials and tribulations he is going through. He is to be explained that this pain is not of a serious nature and that we will do all in our power to gradually relieve this condition. We know, on the other hand, that pain in the denture supporting structures may emanate from other physical and emotional causes than conversion hysteria alone. Thus, it may be caused by a knife edge bony ridge, sharp bony processes under the mucosa, exposed nerves that are impinged upon by the pressure from the artificial denture. Again, from a neurologic and psychologic standpoint it may well be that in some patients under severe stress and strain all his mucous membranes become hypersensitive. Or, the homeostasis of the mucosa of the oral cavity alone may become disequilibrated as a result of severe emotional stress and strain. Therefore, we have good reasons for guarded optimism and can certainly afford to share our optimistic diagnosis with our emotionally distressed patient thus giving him our supportive and insight psychotherapy. In the instance of the patient under discussion or in similar cases of emotional stress we should be able theoretically to direct such persons to a hospital for a "rest cure" as our colleagues, physicians, do. In dental practice it does not work that way. Let us then utilize our professional prestige, our working knowledge in psychology and our competence in the art and science of dentistry to calm the panicky patient and to restore to him the emotional equilibrium he so hopelessly lost. Let us not leave a stone unturned to infuse

new hope, dignity and confidence of our patients in themselves by giving them a chance to lean on us. But in doing so, let us not lose sight of the fact that some hysterical, morbid and cantankerous patients would want to lean on us in a manner to crush us. We should then be alert to recognize how long and how heavily we can permit a particular patient to lean on us. After everything in our power was done for the patient's welfare the dentist is to become the guardian of his own health. He should know when to stop satisfying the whims and perfectionistic fancies of his hysterical and ill conditioned patient. In this way the dentist will also render a distinct psychosomatic health service to himself and to his family.

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LE PSYCHOSOMATICA IN LE SALA DE CONSULTA DENTAL

per Dr. chir. dent. Joseph S. Landa

SUMMARIO IN INTERLINGUA

Le conception psychosomatic del morbos ha devenite un major thema de discussiones e conferentias. Medicos e dentistas concentra de plus in plus attention e interesse super le formulation scientific e le application practic del principio hygienic enunciate per le ancianos roman in lor dicto "Mens sana in corpore sano". Le autor es convincite que iste dicto es de facto un precursor del concepto del psychosomatica. Iste ultime termino combina duo parolas, "psyche" e "soma", i.e. mente e corpore. Le composito "psychosomatic" se applica alora a un fusion de mente e corpore in un integro indivisibile. Assi il non pote exister un morbo physic consciemente experientiate per le patiente sin que illo exerce un effecto super su vita emotional, e—del altere latere—nulle morbo del mente es possibile sin directe o indirecte repercussiones in le functiones e activitates del corpore.

A iste puncto le question se subleva si le concepto psychosomatic in su applicationes medical e dental es de facto completemente nove. Le responsa debe esser un responsa definitemente negative, proque medicos si ben como dentistas es, depost longe tempores, conscie del existentia de crete relationes inter morbos physic e experientias emotional. Remane le facto, nonobstante, que mesmo in nostre dies le concepto in question es honorate troppo generalmente in le theoria plus tosto que in le practica. Le interesse e le enthusiasmo del profession medical ha essite captivate per un tal multitude de nove inventiones e discopertas epochal in le campos de histologia, pathologia, bacteriologia, e biochimia que il non es injuste insister que le vita emotional del patiente recipe solmente un attention inadequate.

Case Report

SUPERFICIAL KERATOSES VERRUCA VULGARIS AND PACHYDERMA ORIS

S. L. ORLEAN, D.D.S.* AND CLAUDE S. LADOW, JR., D.D.S.,† M.SC. (DENT)

CHIEF COMPLAINT

A 41 year old negro male was referred to the Veterans Administration Hospital, Philadelphia, Pennsylvania from a civilian facility with a diagnosis of "oral warts." The patient was admitted on April 28, 1959 for study and removal of this lesion.

The patient was tall, thin, alert, well-nourished and was in no acute distress at the time of admission. The history revealed that the growth began at the corner of the mouth, approximately six months ago, and had increased both in size and in number. The patient reported no pain in the involved area and that mastication was not affected.

HISTORY

The personal history was essentially negative with the patient claiming no significant childhood or adult illnesses other than several episodes of gonorrhea. The patient drank alcohol occasionally, did not smoke, and denied any present drug medication. The patient also gave no history of previous operations or serious injuries.

PHYSICAL EXAMINATION

Physical findings were unremarkable. A scattered acneform eruption on the trunk was present. At admission, his blood pressure, pulse and temperature were within normal limits.

ORAL EXAMINATION

The regional examination of the oral cavity disclosed numerous papillary lesions at the left commissure of the lips, the left and right buccal mucosa and the left retromolar area. (Figures 1-2) These varied in size from 0.1 cm. to 0.9 cm. in their largest diameter. They were soft, raised, not tender to palpation or pressure and were normal in tone and color. The palate and floor of the mouth were essentially negative. The tongue was normal. Caries and a retained root fragment were present, the latter effecting the lesions of the left buccal mucous membrane during opening and closing of the mandible. Oral hygiene was poor.

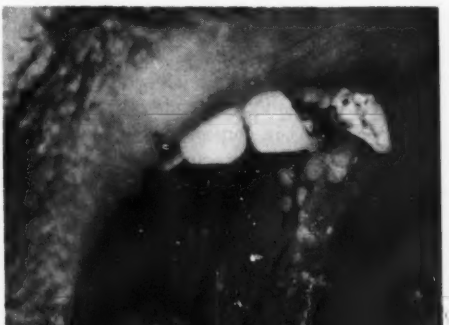

Figure 1. Various size lesions at commissure and Buccal Mucosa.

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† Chairman, Department Oral Surgery, University of Pennsylvania School of Dentistry; Consultant in Oral Surgery, Veterans Administration Hospital, Philadelphia, Pa.

Figure 2. Close up lesions Buccal Mucosa.

Figure 3. Biopsy, specimen A (X50) Pachyderma Oris.

LABORATORY AND ROENTGEN FINDINGS

Laboratory studies of urine and blood were all within normal limits. Serology was negative. Routine chest radiography was negative. Routine periapical radiographs revealed caries; alveolar bone loss, slight, in both maxillae and mandible; and apical radiolucent areas about the retained root fragment and upper right first molar.

On May 7, 1959, a biopsy of two lesions was taken. They were reported as follows:

Specimen A—from the left buccal mucosa:

Gross Description: "Received in formalin is small piece of gray-white mucosal epithelium with greatly thickened nodular surface. Specimen measures 1 by 0.6 by 0.5 cm."

Microscopic Examination: "Showed gingival mucosa with parakeratosis, irregular acanthosis, and irregular prolongations of the rete ridges. The cells of the Malpighian layer appear well-oriented and show no disorganization. There is leukocytic trans-migration through the epithelial layer. The submucosa shows numerous and dense infiltrates of lymphocytes, plasma cells and histiocytes. Few granulocytes are seen. No evidnce of malignance is seen." (Figure 3)

Specimen B—from left retromolar area:

Gross Description: "Received in formalin is a flat, slightly elliptical piece of buccal mucosa, measuring 1.3 by 0.5 by 0.3 cm. The surface is gray-white with multiple elevated nodular gray-white lesions."

Microscopic Examination: "Showed parakeratosis and an irregular focal area of acanthosis. There are mild, focal, lymphocytic infiltrates just at the junction of the basal layer and submucosal tissues." (Figure 4)

Diagnosis: Sections A and B: Chronic, nonspecific hyperkeratosis, buccal and alveolar tissue biopsy (compatible with pachyderma oris).

SURGICAL PROCEDURE

On June 10, 1959 the patient was taken to the operating room. Premedication consisted of secobarbital sodium-100 mg., scopolamine 0.3 mg., and demerol hydrochloride 100 mg. one hour prior to surgery. The face and the oral cavity were prepared in the usual way with Phisohex and Zephiran; and followed by proper draping. Infiltration anesthesia of 2% lido-

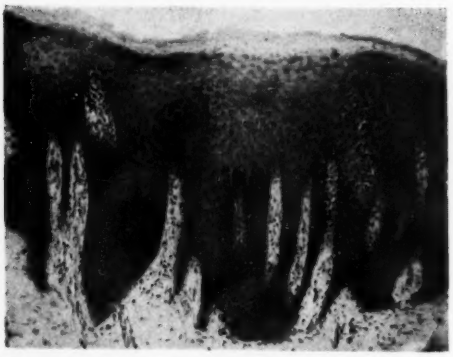

Figure 4. Biopsy specimen B (X90) Pachyderma Oris.

caine with 1:100,000 epinephrine and administered in the tissues surrounding the lesions in the right and left buccal mucosa. Removal began with electro-excision by wire loop of a very small lesion on the right buccal mucosa. Then proceeding to the posterior left buccal mucosa, additional small elevated lesions were similarly removed. Bleeding was stopped by electrocoagulation. Removal of the lesions on the anterior left buccal mucosa where the majority were, was then performed. The lesions were raised by forceps and excised by wire loop. Almost 25 separate growths were removed altogether. Bleeding was halted by electrocoagulation. A larger lesion at the left commissure of the lip was then excised by scalpel. The cut edges were approximated and the wound was closed with black silk sutures. Adjacent, very small lesions on the inner aspect were then removed with an electro-coagulating needle. Pramoxine hydrochloride ointment was placed over the operative site. The patient was returned to the ward in good condition.

Healing was uneventful. (Figure 5) The sutures were removed on the fourth post-operative day, and the patient discharged on June 15, 1959. The patient was advised to return monthly for follow-up examinations. (Figure 6)

Histologic examination of the removed tissue:

Gross Description: "Received fresh approximately 23 gray-white, firm, rounded nodular, slightly lobulated pieces of tissue from right and left anterior and posterior buccal mucosa, and a separate flat piece of tissue with a gray-white lobulated surface, measuring 1.0 by 0.7 by 0.2 cm. The small pieces average 0.2-0.3

Figure 5. Post-operative — 48 hours. Note suture at commissure.

Figure 6. Post-operative 5 weeks — normal healing.

cm. in diameter, and 0.1 cm. thick. Another specimen from the commissure is similar in appearance to the previously mentioned flat tissue, measuring 0.8 by 0.4 by 0.3 cm. The surface is gray-white, slightly granular and lobulated."

Microscopic Description: "Multiple specimens showed focal hyperkeratotic papillary formations of the stratified squamous epithelium of the buccal mucosa. The second specimen is particularly large verrucous lesions. The epithelium showed hyperkeratosis, parakeratosis, and acanthosis with blunt papillary down-growths of the Malpighian layer. The basement membrane is intact and no evidence of malignancy is seen." (Figure 7)

Diagnosis: Verruca vulgaris, buccal mucosa.

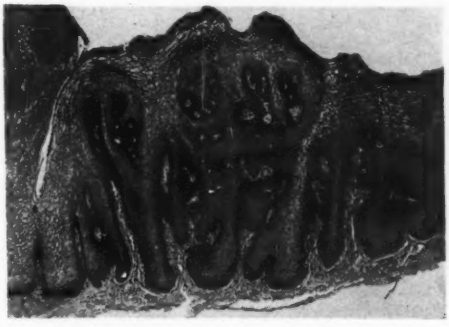

Figure 7. Removal specimen (X35) pathological diagnosis—Verruca Vulgaris.

PATHOGENESIS

VERRUCA:

Description: occurring singly or groups, varying in color and size, flat or elevated, having a rough or cornified surface, effecting the skin and mucous membrane adjacent to mucocutaneous functions.[1, 2]

Etiology: caused by filterable virus; whether a single virus, a group of viruses or both, modified by local, individual or unknown factors have not been established. They are infectious, auto-inoculable and can be transmitted from man to man.[3]

Morphology: several types with the filiform or digitate type most preponderant.[4, 5]

Histology: the characteristic changes are found in the epithelium. Acanthosis with hyperplasia of the stratum granulosum and hyperkeratosis, parakeratosis or both is present. Dyskeratosis is not present. The rete pegs do not extend much below the normal level of the surrounding skin.[2]

Treatment: recommended is surgical removal whether by scalpel, electro-cautery or electrocoagulation. Radiation is sometimes utilized.[3]

PACHYDERMA ORIS:

Description: Bernier[6] states "it is primarily a defense thickening of the oral mucosa resembling leukoplakia clinically.

Etiology: is initiated by local stimulating or irritating factors.

Morphology: they are white and irregular and varying sizes.

Histology: the keratin may vary from none to an appreciable amount. The stratified squamous epithelium demonstrates hyperplasia and this may take the form of broad, fused rete pegs, extending deeply to the corium. Edema of the epithelium may be seen. When keratosis is marked the stratum granulosum is often prominent. The absence of dyskeratosis is important."

Treatment: recommended is surgical removal, whether by scalpel, electro-cautery or electrocoagulation. Chemotherapy and the administration of vitamin B or stilbestrol is occasionally utilized. Palliative measures are indicated when pain is a factor.

ADDENDUM

Because of the unusual and numerous lesions; the slides of the tissue biopsy and tissue removed were forwarded to the Armed Forces Institute of Pathology.[7] Confirmation of the diagnoses was reported and comment "The above diagnoses are in essential agreement with your interpretation of the lesions. The multiple verrucae in this location are unusual."

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Appreciation is expressed to Dr. S. Bornstein, Chief of Laboratory Service, for his assistance in the histopathologic determination.

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Reuben Feltman (left) and Academy President George G. Stewart (Center) are greeted by Hermann Becks, President of the American Institute of Oral Biology at the Institute's meeting at Palm Springs, California last October.

Midwinter Meeting Committee all smiles after their successful meeting on December 6, 1959. (L. to R.) Rudy Palermo, Abraham Reiner, Andrew Cannistraci, Chairman; Sanford Kirsch, Co-chairman; Alonzo DeVanna, and Irving Yudkoff.

Medical Views on Oral Problems

SYMPTOMS OF AGING*

TO THE EDITOR:—*A 70-year-old woman has complained of a burning sensation in her mouth, throat, and tongue. She lives alone and has few outside interests. In the winter months her daughter visits her, and during this time she complains less frequently. She has a cataract of the right eye and pain in the right temporal region. Her home is heated by an open gas burner which is in the living room and has no outside flue. She feels cold most of the time, and the gas burner is on almost continuously.*

Byron W. Gutheil, M.D., Pasadena, Calif.

ANSWER.—This patient complains of symptoms commonly observed in elderly persons. The pain in the temporal region may be due to neuritis of the sympathetic ganglions of the head or neck and the ninth nerve. Proper ventilation of the house is well advised, although sensitivity to cold is common in elderly persons. The decrease of symptoms when her daughter visits her indicates the emotional component of the problem. Treatment would include improvement of diet, more effective heating and ventilation of the house, and an attempt to make her live a more active, less reclusive life.

* Questions and Answers, J.A.M.A., Nov. 28, 1959, p. 213/1907.

FLUORIDE TABLETS

TO THE EDITOR:—*Which fluoride tablets are satisfactory and safe for the purpose of controlling dental caries... What is the dosage schedule?*

Ronald M. Thompson, M.D.
West Palm Beach, Fla.

ANSWER.—The council on dental therapeutics of the American Dental Association recently commented on the prescription use of dietary fluorides (*J. Am. Dent. A. 56*:589 [April] 1958). A number of forms of fluoride supplements are on the market. The only one that has been brought into conformity with the council's provisions is the product marketed under the brand name Fluoritabs. Additional products may be added to this list.

An excerpt from the council's announcement reads as follows:

Fluoride tablets may be employed with least difficulty in localities where the drinking water is substantially devoid of fluoride. The following prescription illustrates their use:

Rx: Sodium fluoride tablets 2.2 mg. Dispense 100.
Label: Use according to written directions.
CAUTION: Store out of reach of children.

Written directions should be provided according to the age of the child as follows:

(1) Before two years of age. Add one fluoride tablet to each quart of water used for drinking purposes and for the preparation of formulas and other food.

(2) From two to three years of age. Every other day add one fluoride tablet to an amount of fruit juice or drinking water which the child will consume at one time.

(3) After three years of age. Administer one tablet each day in an amount of fruit juice or drinking water that will be consumed at one time.

* Questions and Answers, J.A.M.A., Nov. 21, 1959, p. 240/1764.

TOO MUCH AND TOO MANY

Medical literature today is in a dismal state. In 1957, more than 200,000 medical articles appeared in over 4,000 medical journals. In that year, 659 journals of medical interest were published in the United States alone, according to the compilation of the World Medical Periodicals by the World Medical Association. Specialization no longer offers any refuge from this inundation of words. In my own field of major interest, the cardiovascular system, 60 pertinent journals were being published in 1957, 12 of them in English. It is manifestly impossible for anyone—clinician, student, pedant, research worker—to have more than a superficial acquaintance with current publications. We have too many journals, most journals have too many articles, and most articles have far too many words.—I. DONALD FAGIN: Too Many Words: A Plea for the Medical Reader. *Mississippi Valley Medical Journal*, September 1959.

RETRACTION IN SCIENTIFIC LITERATURE

No one who has published a large number of papers is ever satisfied with all of them and there is usually one or more which the author has later wished that he had never written. Most of these papers were honestly thought out and carefully presented: but some later development revealed a grievous flaw, either in the thinking or in the process, which led to

its abandonment. The literature, however, still records the material as presented. On a rare occasion the author may present a follow-up paper pointing out the deficiencies in his article, or on occasion this may be accomplished by some other author's publication. Many physicians, however, may not come in contact with these articles and may continue the method of treatment of the original paper long after its author and others have decided that the concept has no merit. . . . I recently saw such a retraction published in the *New England Journal of Medicine,* which is one of the few journals which follow this plan. It is my suggestion that a section of each of today's numerous medical journals be reserved for just such retractions.—KENNETH E. LEMMER: Responsibility of Authorship. *Wisconsin Medical Journal,* March 1959.

INGESTION OF PLASTER OF PARIS*

TO THE EDITOR:—*What symptoms will follow ingestion of powdered Plaster of Paris and what treatment can be recommended?*

M.D., New Jersey.

ANSWER.—The ingestion of Plaster of Paris (anhydrous calcium sulfate or dihydrate with about 5% of water [0.5 mol]) may result in obstruction of the patient's upper intestinal tract, particularly at the pylorus, because this compound hardens quickly after absorption of moisture. Treatment consists of giving glycerin or gelatin solutions or large volumes of water to delay the setting process; surgical removal of the material may be necessary.

* Questions and Answers, J.A.M.A., Feb. 27, 1960, pp. 165/991.

SALIVA OF INCREASED VISCOSITY*

TO THE EDITOR:—*A 48-year-old woman has complained for eight or nine months that her saliva is thicker and more sticky than usual and, at times, has a slightly whitish, discolored appearance. She is healthy and there is no evidence of swelling, infection, or neoplasm in the salivary glands. The results of a basal metabolism test were recorded at —12 to —15. Is this condition serious?*

Walter D. Hankins, M.D., Johnson City, Tenn.

ANSWER.—This woman has xerostomia, which is the absence or diminution in quantity of salivary secretions, causing a saliva of sticky consistency and difficulty in mastication and swallowing. On examination of the patient, the saliva usually "strings" when touched with a throat stick, and only a small amount of viscid saliva can be be expressed from the principal salivary ducts.

Idiopathic xerostomia is a rare condition which is most commonly seen in elderly women. The onset is insidious, progressive, and, once established, permanent and irreversible. Treatment is limited to improvement in oral hygiene, the use of soothing mouthwashes, and improvements of nutritional status.

Acquired xerostomia is usually temporary, except when it occurs after radiation therapy. It may occur in patients improperly treated for dehydration, in patients with severe emotional disturbances, or in patients receiving drugs such as antispasmodics, antihistaminics, and opium derivatives. Treatment is directed primarily at the underlying disease or condition, with augmentation of the fluid intake induced by drinking unsweetened lemonade, chewing gum, or sucking juice from a lemon. Administration of nicotinic acid or pilocarpine hydrochloride may be of benefit.

A basal metabolism rate of —12 to —15 is probably not of any pathological significance in this woman, since she is completely symptomless with regard to her thyroid status.

* Questions and Answers, J.A.M.A., Feb. 27, 1960, pp. 166/992.

As we went to press, we learned of the death of Dr. James R. Ladd of Pontiac, Michigan who suddenly passed away on March 22, 1960. Dr. Ladd was an active member of the Michigan Section and was Convention Chairman of one of the Academy's National Meetings which was held in Detroit several years ago.

The officers and members of the American Academy of Dental Medicine extend their sincerest condolences to his wife, Alma, and her two sons, James W. and John Justice.

Book Reviews

Internal Medicine in Dental Practice, by Leon H. Collins, Jr., A.B., M.D., F.A.C.P., F.C.C.P. and Martin P. Crane, B.S., M.D., Sc.D. (Hon.), ed. 5., Lea & Febiger, Philadelphia, 555 pages, 94 illustrations and 30 in color on 6 plates, 1960, $8.50.

All recent advances in internal medicine are in this edition. Older material has been deleted and the entire text revised in line with current knowledge. Stress is always on dental relationships. Among the added features is a new section, *Sulfonamides, Antibiotics and Tuberculostatic Agents.* The bibliography has been replaced by a more effective arrangement of carefully chosen, appropriate references at the end of each section. The popular "boxed summaries" which enable readers to see therapeutic suggestions at a glance, are retained.

With the knowledge presented in this book practicing dentists can, with full confidence, offer recommendations to their patients relative to the need of consulting an internist, make intelligent reports to the patient's physician when required, and govern their own procedures and guard their own health by the observations they make.

Endodontic Practice, by Louis I. Grossman, D.D.S., Dr. Med. Dent., F.A.C.D., ed. 5., Lea & Febiger, Philadelphia, 402 pages, 327 illustrations on 143 figures, 1 in color, 1960, $7.50.

Every phase of endodontic treatment of vital and pulpless teeth, including periapical surgery, is covered fully in this practical book. Diseases of the pulp and the periapical tissue are explained clearly to facilitate their prompt recognition and treatment. Methods of diagnosis are presented in detail in a separate chapter. Bleaching of discolored teeth, and the treatment of traumatized and fractured anterior teeth are discussed comprehensively.

Virtually rewritten, this edition includes such recent advances as the use of an alkaline (EDTA) solution instead of an acid for assistance in enlarging root canals, development of a non-irritating but effective antimicrobial agent, and discussion of the newer resins for filling root canals. The section on antibiotics is presented more comprehensively than before and practical applications are described. New illustrations have been incorporated throughout the text.

The author's technique of immediate root resection, in which the canal is cleansed, enlarged, sterilized, filled and the root apex resected in one operation, is described fully. The time required is approximately one hour.

Accepted Dental Remedies, published under the immediate supervision of the Council on Dental Therapeutics of the American Dental Association, 25th edition, 1960.

The 1960 edition extends the revisions in the organization and content of Accepted Dental Remedies which were emphasized in 1959. Reorganization of the book is designed to facilitate its use by the dentist and dental student.

As in earlier editions, Accepted Dental Remedies includes information concerning, 1—drugs of recognized value in dentistry, 2—drugs of uncertain status more recently proposed for use by the dentist and 3—some drugs once employed extensively but now generally regarded as obsolete. Only brands of drugs of recognized value in dentistry are included in the listing of accepted dosage forms. Descriptions of other drugs are provided for information only. Their inclusion is not to be construed as a recommendation for their use.

Nutrition in Clinical Dentistry, by Abraham S. Nizel, D.M.D., M.S.D., W. B. Saunders Co., Philadelphia, 467 pages, illustrated, 1960, $10.00.

The author has prepared this text so that the general practitioner of dentistry can use nutrition in his everyday practice. It also serves as a guide for teaching nutrition to the dental student and dental hygienist.

During the last fifteen years nutrition has played an ever increasing part in the practice of dentistry. The dentist who appreciates the importance of nutrition in maintaining the integrity of the tissues of the oral cavity, the teeth and the periodontium can apply it in his daily practice. The patient looks to the dentist for management of all types of problems that arise in the oral cavity, and he must be prepared to adequately handle nutritional problems as well as restorative and surgical ones.

Providing adequate diets during the periods of dental stress as well as utilizing proper diets for maintenance of tissue health postoperatively are as important adjuncts in the over-all management of a dental patient as are radiographs in diagnosis, or oral physiotherapy in periodontics.

This book is divided into two major parts, one on basic nutrition and one on applied nutrition. In basic nutrition the chemistry and physiology of each of the nutrients is discussed to give an understanding of its normal metabolism. In the section on applied nutrition, basic information on normal diets and the procedure for arriving at a nutritional diagnosis are

presented as a preface to the specific dietetic management of the various dental problems that are encountered in daily practice.

Disorders of the Temporomandibular Joint, by Laszlo Schwartz, D.D.S., and 18 contributors, W. B. Saunders Co., Philadelphia, 471 pages, 458 illustrations on 168 figures, 1959, $15.00.

Interest in the temporomandibular joint has increased among dentists during the last twenty years. Most phases of treatment of these disorders involving the joint have been carried out by the dental profession. This has resulted from the technical difficulties associated with this region and ultimately led to its separation from the broad area of medicine and its segregation in the specialty of dentistry.

Dr. Schwartz and his 18 contributors have presented their concepts, diagnostic procedures and therapeutic methods simply. They believe that effective diagnosis and management often call for close cooperation among dentists and physicians. An important prerequisite for such cooperation is a common scientific nomenclature and general agreement as to physiologic concepts and principles of diagnosis and treatment.

The book is well written and integrated even though 19 different men have made contributions. The text is clearly illustrated and contains a generous bibliography at the end of each chapter. The body type is large and clear and the page make up allows for easy reading. This book is a welcome addition to the dental literature.

Dental Auxiliary Personnel, The Proceedings of a Two-Day Workshop Conducted by the American Academy of Dental Practice Administration, C. V Mosby Co., St. Louis, 157 pages, 1959, $3.85.

This book contains the results of a two-day Workshop entitled Dental Auxiliary Personnel which was held on January 30 and 31, 1958 at the Conrad Hilton Hotel, Chicago, Illinois. A total of 185 persons, composed of members, speakers, consultants and invited guests were divided into four study groups. These groups discussed and studied the following problems: 1. obtaining dental auxiliary personnel, 2. training dental auxiliary personnel, 3. retaining dental auxiliary personnel and 4. maintaining dental auxiliary personnel.

The study made by each of the four groups was based on an outline as well as a list of questions, both of which appear in the proceedings of each study group. It is proposed that this Workshop, conducted by the American Academy of Dental Practice Administration, will be directed at attempting to answer for the dentist many of the questions that have arisen relative to placing one or more dental assistants in his office.

Principles of Disability Evaluation, by Wilmer Cauthorn Smith, M.D., J. B. Lippincott Co., Philadelphia, 210 pages, 1959, $7.00.

The author has presented and elaborated on the philosophy and logic which necessarily must underlie any rational understanding of disability. The ability to distinguish valid disability and to evaluate it rests fundamentally upon a logical concept of the nature of disability and the basic principles which govern its evaluation. If the physician grasps these fundamentals, relatively little experience will bring proficiency, and this proficiency will readily be adaptable to the provisions of any legislative enactment. This same rational understanding of the fundamentals involved will also serve to make the physician aware of the limitations which medical science necessarily imposes upon his ability to evaluate certain types of human handicap.

The subject matter of this book falls into four primary divisions. The first deals with the growing importance of disability evaluation and the attitude of the physician toward its various facets. Section two is devoted to defining and elaborating the concept of medically ratable industrial disability. Section three deals with the problem of etiologic relationship between injury and disability or disease. The last section is concerned with the actual evaluation of industrial disability, including a presentation and discussion of the concepts and principles which necessarily must underlie a rational approach to such appraisal.

The Mouth, Its Clinical Appraisal, by A. B. Riffle, D.D.S., J. B. Lippincott Co., Philadelphia, 118 pages, 1959, $3.50.

Dr. Riffle feels, and justly so, that the physician is hesitant about formulating opinions concerning the teeth and their surrounding tissues for they have been taught little as undergraduates and in their hospital training. The dentist, too, is hesitant when he encounters pathology in the rest of the mouth, that is changes that have not originated in or around the teeth. The author feels that as a result physicians only scan the mouth during their examination procedures. And dentists many times forget to look at the lips, cheeks, palate, tongue and the floor of the mouth. Neither one, physician or dentist, feels completely responsible, Dr. Riffle feels.

This little volume contains the technic that evolved, brief practical interpretations, and background explanations of the conditions that we are most likely to see. The purely dental have been omitted.

Academy Proceedings

MICHIGAN SECTION

The Michigan Section of the American Academy of Dental Medicine held four meetings in 1959, the first of which has been reported upon. A resume of the others follows:

Coincident with the Michigan State Dental Association Annual Meeting held in April at Grand Rapids, our section held its second meeting. We were privileged to hear Dr. Erwin M. Schaffer of the University of Minnesota School of Dentistry who presented a most interesting treatise on the use of cartilage implants in periodontal pockets.

Our President, Dr. Charles Conat and Mrs. Conat were hosts to the Michigan Section on Saturday, August 22, 1959. Their lakeside home provided an excellent setting for our meeting. A Ladies Auxiliary of the Michigan Section was organized, and action was initiated to promote establishment of a Women's Auxiliary at the National level.

The pleasant outing furthered friendships admirably and served as an excellent get acquainted occasion.

On November 17th our section hosted our learned Dr. A. Alfred Nelson of Detroit. Dr. Nelson, an outstanding teacher in the field of prosthodontia discoursed on "Temporomandibular joint disturbances—as seen through the eyes of the prosthodontist". A meeting of the nominating committee followed.

The annual election of officers was held on Tuesday, Jan. 26. The following members were elected to their respective offices by unanimous vote:

President	Dr. O. B. Aubin
President-Elect	Dr. Meyer Green
Vice-President	Dr. David Collon
Secretary	Dr. Herman Lifton
Treasurer	Dr. Joseph Barkley
National Delegate	Dr. Edward Freimuth
Alternate Delegate	Dr. Marie Salutsky

The members of the Women's Auxiliary were our dinner guests. Following the election of officers, our section was priveleged to hear an excellent presentation on "The Dentist and the Law" by Dr. John Shackelford and a legal representative of the Medical Protective Association.

EDWARD FREIMUTH, *National Delegate*

DR. HARRY M. SELDIN HONORED

The Parents Association of the New York University College of Dentistry awarded an honorary membership to an outstanding alumnus of the College, Dr. Harry M. Seldin of Putnam Valley, New York, at its ninth annual dinner held on Wednesday, February 3, 1960.

Dr. Seldin, internationally known oral surgeon who practices in New York City, is a 1918 graduate of the University's College of Dentistry. While serving for a number of years as a member of the New York University faculty, he also gained an international reputation in dental education. Dr. Seldin marked his 65th birthday on Thursday, February 4.

The dinner was held at the Hotel Commodore, New York City. Humorist Harry Hershfeld was the toastmaster.

AMERICAN ACADEMY OF DENTAL MEDICINE COMMITTEES 1959-1960

PLANNING AND FINANCE

DON C. LYONS, *Chairman*
GEORGE G. STEWART
HERMANN BECKS
GEORGE F. CLARKE
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SIDNEY SORRIN
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JAMES CONANT, Detroit 1961
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S. LEONARD ROSENTHAL, Philadelphia 1962
ABE CHASENS, New Jersey 1962

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GUY LANGLIER, Montreal 1961
GEORGE BRUNS, Boston 1961
SANFORD KIRSCH, New York 1962
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HERMAN LIFTON, Detroit 1961
ROGER LYONS, Michigan 1961
HOWARD WARD, New York 1962
STEPHEN NACHBAR, New York 1962

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O. M. GUPTA, New Delhi 1960
FERMIN REYGADAS, Mexico 1961
GUILLERMO C. CRUZ, Columbia 1961

HISTORIAN

WILLIAM M. GREENHUT, New York
Representatives from each section

PARLIMENTARIAN

JOSEPH BARKLEY, Detroit

SECTIONS

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ARTHUR STONE, Massachusetts 1960
ALFRED SCHWERGER, Montreal 1961
SAM LESLIE, Toronto 1961
RALPH MEZROW, Philadelphia 1962
MILTON SISKIN, Tennessee 1962

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GUNTER SCHMIDT, St. Louis, *Co-Chairman*
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C. C. ALPERT, Washington
W. C. COLLINS, Ottawa
PEARCE ROBERTS, North Carolina
D. H. PARADIS, Ohio
ALFRED AUSTINE, Florida
DUFRESNE YVES, Quebec
F. J. SAMAHA, Armed Forces

SAMUEL CHARLES MILLER MEMORIAL FUND

J. LEWIS BLASS, New York, *Chairman*

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LEONARD M. NEVINS, New York	1960
HARRY LANZA, New York	1961
J. N. QUARTARARO, New York	1961
ALBERT LEFERRIERE, Montreal	1962
MARIE SALUTSKY, Detroit	1962

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GUNTER SCHMIDT, St. Louis	1961
W. C. COLLINS, Ottawa	1961
NORMAN ROSS, North Carolina	1962
HAROLD LENTZ, New Jersey	1962
ABE REINER, New York	1960

MEDICAL-DENTAL RELATIONS

EMANUEL CHERASKIN, *Chairman*

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EDWARD DOBBS, Baltimore	1960
STEPHEN SZABO, Ohio	1961
SAMUEL KANE, Boston	1961
ARTHUR GOLD, Boston	1962
STEWART PEERY, North Carolina	1962

INTERNATIONAL INTERCHANGE OF DENTAL MEDICINE

S. LEONARD ROSENTHAL, *Chairman*

PHILIP AMENT, Buffalo	1960
CLAUDIO FUNCIA CORNELL, Havana	1960
GEORGE WITKIN, New York	1961
LESTER BURKET, Philadelphia	1961
GEORGE CLARKE, Massachusetts	1962
DON LYONS, Michigan	1962

EDUCATION

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JACOBY T. ROTHNER, Philadelphia	1960
F. J. FABRIZIO, Washington	1961
J. B. FREEDLAND, North Carolina	1961
EDWARD T. FARRIS, Texas	1962
RALPH SOMMERS, Ann Arbor	1962

RESIDENCY IN ORAL MEDICINE

MILTON HYMAN, New York, *Chairman*

GEORGE HARE, Toronto	1960
T. G. NISBET, North Carolina	1960
RALPH SOMMERS, Ann Arbor	1961
SAMUEL ROBBINS, Ohio	1961
MORTON AMSTERDAM, Philadelphia	1962
JANE O'MALLEY, Buffalo	1962

PUBLICATIONS

IRVING YUDKOFF, *Chairman and Editor*

ALLAN N. ARVINS, New York	1960
EDWARD FREIMUTH, Detroit	1960
LESTER BURKET, Philadelphia	1961
EMANUEL CHERASKIN, Alabama	1961
JACK FREEDLAND, North Carolina	1962
S. LEONARD ROSENTHAL, Philadelphia	1962

ASSISTANT EDITOR IN CHARGE OF SECTION CORRESPONDENTS

GEORGE WITKIN, New York

ADVERTISING

REUBEN FELTMAN, New Jersey, *Chairman*

JACOBY ROTHNER, Philadelphia	1960
LOUIS J. ROSEN, Montreal	1960
MARIE SALUTSKY, Detroit	1961
GUNTER SCHMIDT, St. Louis	1961
MARTIN ENTINE, Philadelphia	1962

SYMPOSIUM ON "RESTORING THE OCCLUSION" HIGHLIGHTS ACADEMY WINTER MEETING

Sidney Sorrin, D.D.S. | Sigurd Ramfjord, L.D.S., Ph.D. | Herbert I. Margolis, D.M.D. | I. Franklin Miller, D.D.S., M.A.

Two hundred Academy members and guests were present at the American Academy of Dental Medicine's Winter Meeting which was held at the Hotel Sheraton Atlantic on Sunday, December 6, 1959. An enthusiastic audience heard Dr. Sidney Sorrin, Professor and Chairman of the Department of Periodontia and Oral Medicine, New York University College of Dentistry serve as moderator and introduce each clinician. Dr. Sigurd Ramfjord, Professor of Periodontics and Chairman of the Periodontia Department at the University of Michigan School of Dentistry lectured on the periodontal aspects of occlusion. He was followed by Dr. Herbert I. Margolis, Professor and Chairman of the Orthodontia Department, Tufts University School of Dental Medicine who covered the orthodontic approach to occlusion. Dr. I. Franklin Miller, Member of the American Denture Society and Fellow of the New York Academy of Prosthodontists and of the International College of Dentists discussed the relationship of rehabilitation to occlusion.

At the conclusion of the three presentations, the moderator, Dr. Sidney Sorrin chaired an extremely interesting question and answer period.

A vote of thanks and appreciation goes to Dr. Andrew Cannistraci, Winter Meeting Chairman, and his hard working committee who were responsible for the excellent manner in which this meeting was handled.

P. PHILIP GROSS
Univ. of Pennsylvania, 1922

FRANK J. KALAS
Univ. of Louisville, 1936

ISHMAEL T. POHLE
Marquette Univ. 1924

EDWARD WHYNMAN
New York Univ. 1918

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MARTIN ENTINE, D.D.S., *Chairman of Publicity*

14th ANNUAL CONVENTION
AMERICAN ACADEMY OF DENTAL MEDICINE
Warwick Hotel Philadelphia, Penna.

May 27, 28, 29, 30, 1960

Dr. Morris Bradin
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Dear Morris:

Please enter my reservation for the Annual Convention.

- ☐ Members' Reservation Fee $45.00*
- ☐ Ladies' Reservation Fee 40.00*
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- ☐ My check to the amount of $.....is enclosed.

* This covers all fees for scientific sessions, luncheons, banquets, dances, cocktail parties and ladies' tours.

I will bring ..... children and will (not) need a baby sitter.

Dr. .....

Address .....

☐ I have filled out and mailed the hotel reservation card.

Announcements

POSTGRADUATE TRAINING IN PERIODONTIA AND ORAL MEDICINE NEW YORK UNIVERSITY COLLEGE OF DENTISTRY

The following postgraduate courses in Periodontia and Oral Medicine will be offered at the New York University College of Dentistry and will be given by Dr. Sidney Sorrin and associates:

No. 124.02. REFRESHER COURSE IN PERIODONTIA AND ORAL MEDICINE

Ten sessions, Wednesday, 4:00 to 6:00 P.M. February 3, 1960 to April 6, 1960.
Tutition and books. $156.00. Instruments approximately $55.00.

Theoretical and practical application of periodontal diagnosis and techniques to general dentistry. Four lecture and six clinical demonstration sessions. Equilibration of occulsion is performed by the student on casts. Patient demonstrations include equilibration of occulsion, conservative and radical therapy, home care, etc.

No. 123.02. PERIODONTIA AND ORAL MEDICINE IN THE SPANISH LANGUAGE

Four weeks, Monday through Friday, 9:00 A.M. to 4:00 P.M.
March 7 to April 1, 1960 inclusive. Tuition including books and instruments approximately $385.00.

Theoretical and practical application of Periodontia and Oral Medicine is fully explained and demonstrated. Equilibration of occlusion is performed by the student on casts. Lectures and clinical demonstrations of diagnosis and treatment planning, conservative and radical techniques, equilibration of occlusion, home care, etc. The entire course is conducted in the Spanish language.

COMPREHENSIVE PREPARATION IN PERIODONTIA AND ORAL MEDICINE

No. 121.11 One academic year, full time. September 14, 1959 to May 27, 1960.
Tuition $1,010.00. Instruments and books approximately $135.-00.

No. 120.11 and 121.11. Two academic years, full time. September 14, 1959 to May 26, 1961.
Tuition $2,020.00 (two years). Instruments and books approximately $231.00.

No. 121.21. Two academic years, half time. September 14, 1959 to May 26, 1961. (Two and one half days weekly.)
Tuition $1,010.00 (two years). Instruments and books approximately $135.00.

No. 120.21 & 121.21 Four academic years, half time. September 14, 1959, to May 1963. (Two and one half days weekly.)
Tuition $2,020.00 (four years). Instruments and books approximately $231.00.

These courses are designed for comprehensive preparation in Periodontia and Oral Medicine and are of particular significance for certification towards specialization. All didactic and clinical phases are covered with the objective of developing expert proficiency.

No. 222. GRADUATE COURSE IN PERIODONTIA AND ORAL MEDICINE.

Two academic years, full or half time, beginning Sept. 14, 1959. Tuition $2,020.00. (two years). Instruments and books approximately $275.00.

This program leads to the degree of Master of Science (in Dentistry). The objectives are to teach superior proficiency in Periodontia and Oral Medicine based on adequate background in the basic sciences.

For further information, write to the Secretary, Postgraduate Studies, New York University College of Dentistry, 421 First Ave., New York, N. Y.

UNIVERSITY OF MINNESOTA

The University of Minnesota School of Dentistry is most pleased to announce the 3rd Annual Course in Advanced Oral Pathology for 1960. The course, held from Thursday, 21 April through Tuesday, 26 April 1960, devotes about half time to examination of approximately 200 slides.

The course will be limited to 20 participants. Tuition will be $100.00. Interested individuals will please contact: Dr. Robert J. Gorlin, Professor and Chairman, Division of Oral Pathology, School of Dentistry, University of Minnesota, Minneapolis 14, Minnesota.

ALBERT EINSTEIN COLLEGE OF MEDICINE YESHIVA UNIVERSITY

DEPARTMENT OF DENTISTRY SECTION OF ANESTHESIOLOGY

The Albert Einstein College of Medicine, Bronx Municipal Hospital Center, Department of Dentistry, Section of Anesthesiology, will present a two day post-graduate Seminar on "Premedication, Co-Medication, and Supportive Therapy in Dental Practice," on Thursday and Friday, June 9th, and 10th, 1960.

The seminar will include lectures, laboratory demonstrations, and practical aspects of the care and management of the dental patient. Clinical demonstrations and individual instruction in intramuscular and intravenous routes of drug administration, airway maintainence, and administration of oxygen, will be included.

The lectures, practical sessions, and luncheon discussions will be held at the Albert Einstein College of Medicine. Class limited, Fee $30.

For further information and application write to: Albert Einstein College of Medicine, Department of Dentistry, Director of Postgraduate Studies, Eastchester Road & Morris Park Avenue, Bronx 61, New York.

TUFTS UNIVERSITY SCHOOL OF DENTAL MEDICINE

The Eleventh Annual Tufts Berkshire Conference in Periodontology and Oral Pathology will be held June 19-23, 1960 at Eastover, a resort hotel in the Berkshire Mountains at Lenox, Mass.

The two major topics for this year's Conference are "Medical Aspects of Periodontal Treatment" and "The Attainment of Physiologic Occlusion in the Total Treatment of Periodontal Disease."

The Conference curriculum is arranged so that the scientific sessions are held in the morning and evening and the afternoons are open for recreation and informal discussion. The Conference is open to general practitioners and individuals in specialized practice.

The clinicians will include the following:

Charles E. Stuart, D.D.S. of Ventura, California will devote two days to the subject of "Physiologic Occlusion."

Joseph L. Bernier, D.D.S., M.S.—Chief, Branch of Dental and Oral Pathology, Armed Forces Institute of Pathology, Washington, D. C. will present a clinico-pathological seminar dealing with "Oral Changes in Systemic Diseases."

Irving Glickman, D.M.D.—Professor and Head of the Department of Oral Pathology and Periodontology, Tufts University School of Dental Medicine, Boston, Mass. whose subject will be "Treatment of Periodontal Problems in Patients with Hormonal and Hematologic Disease."

Carl E. Cassidy, M.D.—Assistant Physician, New England Center Hospital, Boston, Mass. will discuss "Patients with Endocrinologic Disease—Diagnosis and Medical Treatment and the Problems they Create for the Dentist."

William Dameshek, M.D.—Director Blood Research Laboratory, New England Center Hospital, Boston, Mass. "Patients with Hematologic Disease—Diagnosis and Medical Treatment and the Problems they create for the Dentist."

Louis Weinstein, Ph.D., M.D.—Chief Infectious Disease Service, New England Center Hospital, Boston Floating Hospital, Boston, Mass. "Patients with Infectious Diseases—Diagnosis and Medical Treatment and the Problems they Create for the Dentist."

For further information and application write to: 11th Annual Berkshire Conference, Tufts University School of Dental Medicine, 136 Harrison Avenue, Boston 11, Mass.

NEW YORK UNIVERSITY COLLEGE OF DENTISTRY ALUMNI ASSOCIATION DENTAL ALUMNI DAY PROGRAM

Friday, April 22nd 1960, at the Plaza Hotel, 5th Avenue and 59th St.

Registration: 9:30 A.M.

10:00 to 11:00 A.M.—Dr. Howard Rusk, Director, N.Y.U. Institute of Physical Medicine and Rehabilitation, will speak on rehabilitation.

11:00 to 11:30 A.M.—Dr. Lester Evans, Director of the University's Center for Rehabilitation Services, will speak also on Rehabilitation with some reference to its dental aspect.

12:00 Noon—Luncheon $5.00 per person.

1:00 Business Meeting.

Carroll V. Newsom, President of the University, will be the honored guest at the dinner.

THE FEDERATION DENTAIRE INTERNATIONALE

The Federation Dentaire Internationale is made up of 60 national dental associations representing 48 countries of the world and about 223,000 dentists. The USA is the largest member with over 90,000 dentists.

The study of dentistry at the international level quickly brings to light the increased recognition of dental health programs throughout the world. This has been accomplished largely through the contacts made by the Federation Dentaire Internationale with the World Health Organization. Medicine has accomplished much through WHO. Now dentistry works parallel with medicine in development of dental health programs in all regional areas of WHO.

While the Federation is composed of national dental associations, an opportunity is given to individual dentists to become "supporting members" of the Federation by the payment of a subscription fee which included the quarterly *International Dental Journal,* the official publication of the Federation.

Aside from the scientific and educational program already in effect, the value of FDI activities is increasingly noticeable in the line of representation and prestige of the dental profession at the international level. Dentistry, as the second largest health profession, must work along with all other health groups.

You can become a part of this program by becoming a supporting member of the Federation Dentaire Internationale. If you will fill out the attached application form and return it to me with your 1960 dues, I shall see that all FDI material reaches you routinely. This consists of:

1. Membership card
2. Membership Certificate suitable for framing
3. FDI News Letter published quarterly
4. International Dental Journal published quarterly

You may be interested in the annual meeting of the FDI in Dublin, Ireland, June 20-25, 1960. If so, let me know.

Obed H. Moen, *USA National Treasurer*
Federation Dentaire Internationale

FREEDMAN NEW CHAIRMAN OF DENTAL INFORMATION BUREAU SHPUNTOFF NAMED SECRETARY-TREASURER

Dr. M. Joel Freedman, New York City, was elected Chairman of the Dental Information Bureau at its annual installation meeting held January 28. He succeeds Dr. Leonard J. Eaton, Mt. Vernon, N. Y., who had completed two one-year terms of service, the maximum permitted by Bureau regulations.

Dr. William Shpuntoff, Jackson Heights, was elected Secretary-Treaurer, succeeding Dr. Frank G. Youhass, Scarsdale. The latter is currently the Bureau representative of the New York Academy of Dentistry. Dr. Shpuntoff represents the Tenth District Dental Society.

The Dental Information Bureau, official public relations agency for the dental societies of New York State, has just completed its twenty-second year of operation. Its component or sponsoring organizations are: Dental Society of the State of New York, First, Second and Tenth District Dental Societies of the State of New York, New York Academy of Dentistry, Greater New York Dental Meeting, American Academy of Dental Medicine, and New York State Society of Dentistry for Children.

Application for Membership

FEDERATION DENTAIRE INTERNATIONALE

I wish to become a Supporting Member of the Federation Dentaire Internationale and subscribe to the International Dental Journal.

Name .....
(PLEASE PRINT)

Degrees .....

Address .....
(PLEASE PRINT)

I am a Member of the American Dental Association.

I enclose $15.00 for Supporting Membership and subscription to the International Dental Journal for the year .....

PLEASE COMPLETE AND RETURN WITH YOUR REMITTANCE TO
OBED H. MOEN
U. S. NATIONAL TREASURER
6 MAIN STREET, WATERTOWN, WISCONSIN, U. S. A.